

# Exhibit D

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16 THE REPORTER: Do counsel agree to waive the  
17 reporter read on/off required under federal rules?

18 MR. NORTH: Yes. That's fine.

19 MR. STOLLER: Yes.

20 THE VIDEOGRAPHER: Good morning. We are on the  
21 record at 10:02 a.m. on January 30, 2019.

22 This is media unit number one in today's video-  
23 recorded deposition of Robert M. McMeeking, PhD, taken by

24 counsel for the defendant in regards to the Bard IVC

25 filters products liability litigation filed in United

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1 States District Court for the district of Arizona. The

2 case number is MD-15-02641-PHX-DGC.

3 This deposition is being held at 401 Storke Road

4 in Goleta, California, 93117.

5 My name is Michael Currie. I'm a certified legal

6 video specialist from Veritext Legal Solutions, and the

7 court reporter is Gina Karen also from Veritext Legal

8 Solutions in Los Angeles.

9 Counsel, would you please identify yourselves for

10 the record and whom you represent.

11 MR. STOLLER: Paul Stoller for the plaintiffs.

12 MR. NORTH: Richard North for the defendants CR

13 Bard and Bard Peripheral Vascular.

14 THE VIDEOGRAPHER: This you.

15 MS. Karen, would you please swear in the witness.

16

17 ROBERT M. McMEEKING, PhD, NAE, FREng, FRSE, LFASME,

18 HAVING BEEN FIRST DULY SWORN BY THE REPORTER, WAS

19 EXAMINED AND TESTIFIED AS FOLLOWS:

20

21

EXAMINATION

22 BY MR. NORTH:

23 Q This will be the deposition of Dr. McMeeking

24 taken by the defendants in the Bard IVC filter product

25 litigation and more specifically in the case of Debra

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1 Tinlin.

2 It's being taken for purposes of discovery and

3 all other purposes permitted under the Federal Rules of

4 Civil Procedure. And we'll proceed as we have in

5 countless other depositions as far as preserving

6 objections except as to the form of the question and

7 responsiveness of the answer?

8 Is that acceptable?

9 MR. STOLLER: Yes.

10 BY MR. NORTH:

11 Q And, Dr. McMeeking, what is your preference as to

12 reading and signing?

13 A I will read and sign.

14 Q Okay. Could you state your full name for the

15 record.

16 A Robert Maxwell McMeeking.

17 Q Dr. McMeeking, as you know, my name is Richard

18 North, and I represent the defendants in this particular  
19 matter.

20 You and I have met on previous occasions;  
21 correct?

22 A That's correct, yes.

23 Q And, in fact, I have examined you on previous  
24 occasions both in deposition and in the courtroom?

25 A That's right. Yes.

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1 Q And we obviously have all this information, but  
2 just so this particular transcript is complete, could you  
3 briefly tell us where you're employed and how you're  
4 employed?

5 A I'm employed at the University of California at  
6 Santa Barbara, and I'm a Tony Evans professor of  
7 structural materials. And I'm distinguished professor of  
8 mechanical engineering at the University of California at  
9 Santa Barbara.

10 In addition, I have a part-time appointment at  
11 the University of Aberdeen in Scotland, where I'm Sixth  
12 Century Professor of Engineering Materials.

13 Q Do you have a full course load these days?

14 A This quarter I do not. I had a full course load

15 in the fall, but right I'm not teaching because I'm  
16 associate dean for academic personnel, which means I do  
17 the personnel performance reviews for the engineering  
18 faculty. And so that takes up a lot of my time at this  
19 time of the year. And for that reason I'm not teaching  
20 right now. But, otherwise, I would have a full course  
21 load.

22 MR. NORTH: If we could mark as Exhibit 1.

23 (Whereupon Defendants' Exhibit 1 was  
24 marked for identification by the court  
25 reporter and is attached hereto.)

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1 BY MR. NORTH:

2 Q Dr. McMeeking, you are familiar with Exhibit 1,  
3 aren't you?

4 A Yes, I am. Yes.

5 Q And that is a copy of the expert report you have  
6 submitted in the case of Debra Tinlin?

7 A That's correct, yes.

8 Q And that report is dated December 7 of 2018;  
9 correct?

10 A Yes. That's correct.

11 Q Since the date of that report, have you given any

12 testimony in a deposition or in a courtroom?

13 A Yes.

14 I have given courtroom testimony in the case  
15 of -- I've forgotten the plaintiff's name already, but  
16 it's a Cook IVC filter case.

17 Q And that is pending in Indianapolis, Indiana?

18 A That's right. It's going on right now in  
19 Indianapolis in the federal court there.

20 Q And so you testified, like, a couple weeks ago in  
21 early -- or mid January; correct?

22 A Yes. It was about a week ago. Just over a week  
23 ago.

24 Q Is that the only time you have testified since  
25 the date of your report?

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1 A Yes. That's correct.

2 Q Have you submitted any additional expert reports  
3 in any sort of litigation since December 7 of 2018?

4 A I don't believe so. No.

5 Q Have you been designated publicly as an expert  
6 witness in any other litigation in the last two years  
7 other than filter litigation against Cook or Bard?

8 A I'm -- I'm not sure if I've been publicly

9 declared. But I'm involved in legislation associated  
10 with Cordis.

11 Q Legislation. What do you mean?

12 A Oh, sorry. Litigation. Litigation. Pardon me.

13 Q Any other -- well, for the Cordis litigation, I  
14 assume, you have been retained on behalf of the  
15 plaintiffs?

16 A That's correct, yes.

17 Q Have you been retained in any other filter  
18 litigation besides Cordis, Cook, or Bard?

19 A No. No.

20 Q You testified previously against Cook in a case  
21 that went to trial in Evansville, Indiana; correct?

22 A That's correct, yes.

23 Q And there was another case that Cook took to  
24 trial in Houston, Texas. Did you testify live in that  
25 case?

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1 A I did not testify live.

2 Q Did you testify by videotape? Or was your  
3 deposition just read? Or do you know?

4 A I believe the video from my deposition was shown  
5 at the trial of Pavlock versus Cook.

6 Q Since the date of your report about six weeks  
7 ago, have you published any other articles or things of  
8 that nature?

9 A Yes.

10 I've had papers that were -- have been submitted  
11 since then and papers that have been moved to accepted  
12 status of journals.

13 Q Do any of those papers have anything to do with  
14 inferior vena cava filters?

15 A No. None of them.

16 Q Do any of them have anything to do with any sort  
17 of medical device?

18 A Not a medical device, no.

19 Q Have you done any consulting in the last couple  
20 of years with companies regarding medical devices?

21 A Yes, I have.

22 Q And could you tell us about that.

23 A I consult for a company called Edwards  
24 Lifesciences. And I consult for them on the subject of  
25 prosthetic heart valves. And I'm also consulting for a  
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1 company in Italy called Epygone also on the subject of  
2 prosthetic heart valves.

3           In addition, I did some consulting work for  
4 Edwards concerning a device that goes into the IVC,  
5 although it is not an IVC filter.

6       Q     What kind of device goes into the IVC if it's not  
7 a filter?

8       A     Well, I'm not at liberty to say.

9       Q     Okay.

10      A     Yeah. I'm not at liberty to say.

11      Q     When is the last time you did any active  
12 consulting with Epygone?

13      A     I was there in the first or the second week of  
14 December, and also I worked for them over the holiday  
15 break doing some calculations and assessments for them at  
16 that time.

17      Q     When is the last time you did any work with  
18 Edwards Lifesciences?

19      A     That was more like the summer of 2018.

20      Q     With regard to your work with Epygone or Edwards  
21 Lifesciences, have you done any physical testing of  
22 products for them?

23      A     No, I have not.

24      Q     Any bench testing?

25      A     No, I have not.

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1 Q Have you been involved in any interaction with  
2 the United States Food and Drug Administration on behalf  
3 of or with Edwards or Epygone?

4 A I was -- I did some interaction with the FDA with  
5 Edwards. Not with Epygone, but with Edwards.

6 Q And when was that interaction?

7 A It was many years ago. Something of the order of  
8 a decade ago.

9 Q Is that the last time you had any interaction  
10 with the FDA?

11 A Other than working through Edwards to provide  
12 support for them when they submit things to the FDA.

13 That's the only direct interaction I've had with the FDA  
14 over the last period of time.

15 Q So, around a decade ago since you last actually  
16 met with an FDA person?

17 A Yeah. It's probably a bit less than a decade  
18 ago. Maybe five years ago.

19 It was actually on behalf of a company called  
20 Sorin, which is also an Italian company, and they are a  
21 prosthetic heart valve company as well.

22 Q Is that the last time you did any work for this  
23 Sorin company?

24 A Yes. Yes.

25 Q And for Sorin you did not do any actual testing

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1 of a product or any bench testing; correct?

2 A That's correct.

3 Q Have you published any papers on medical devices

4 in the last five years?

5 A I have to double-check. Because I don't remember

6 when the last time I published a paper on prosthetic

7 heart valves was. But it's been a number of years since

8 I published on medical implants.

9 Q Have you ever published anything on any medical

10 implant other than a prosthetic heart valve?

11 A No.

12 Q Now, the title of your report Exhibit 1 is, and I

13 quote: "Report on the Bard Inferior Vena Cava Filter

14 Implanted in Mrs. Debra Tinlin."

15 Is that correct?

16 A That's correct.

17 Q And that report is intended to be specific to the

18 filter Mrs. Tinlin actually received; correct?

19 A That's correct.

20 Q What model filter was that?

21 A She had a Recovery, a Bard Recovery filter  
22 implanted.

23 Q You had previously provided reports in this  
24 litigation regarding your general opinions about Bard  
25 filters; correct?

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1 A That's correct.

2 Q And the purpose of this particular report was to  
3 present opinions specifically tied to the fact of  
4 Mrs. Tinlin's case; is that correct?

5 A That's correct.

6 Q Does your billing rate remain \$400 an hour, or  
7 did you increase it effective January 1?

8 A It remains \$400 an hour for consulting, but \$800  
9 an hour for deposition and court testimony, which is the  
10 same as the previous figure that I've been using.

11 Q Your actual opinions pertaining to Mrs. Tinlin as  
12 set forth in your report begin on the first page after  
13 the heading "Mrs. Debra Tinlin's filter"; is that  
14 correct?

15 A That's correct, yes.

16 Although it's -- the opinions are half a page  
17 beyond that.

18 Q But that's where they begin?

19 A That's where they begin, yes.

20 Q And you have a series of bullet points that

21 continue over to the second page; correct?

22 A That's correct.

23 Q And those are reporting or summarizing medical

24 events that occurred with regard to Ms. Tinlin; right?

25 A That's correct.

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1 Q And was the basis of your understanding of those

2 events the medical records and the expert reports of

3 Dr. Hurst and Dr. Muehrcke?

4 A That's correct.

5 Q Now, underneath, if we can turn to page 2, the

6 first full paragraph beyond the bullet points states:

7 "Based upon my review of the

8 referenced medical records and expert

9 reports and consistent with my evaluation

10 of the Bard Recovery filter and my

11 opinions regarding failure modes of the

12 Recovery filter, I have determined to a

13 reasonable degree of engineering and

14 scientific certainty that Mrs. Tinlin's

15           Recovery filter experienced all of the  
16           failure modes consistent with the defects  
17           inherent in the Recovery filter."

18           Is that correct?

19     A    That's correct.

20     Q    And that is an opinion specific, obviously, to  
21 the case of Mrs. Tinlin; correct?

22     A    That's correct.

23     Q    Now, in your report you identify various safety  
24 features that you believe were available to Bard prior to  
25 the time Mrs. Tinlin received her Recovery filter; is

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1 that correct?

2     A    That's correct.

3     Q    And if we look at page 3, in the second -- or the  
4 first full paragraph, you identify what those safety  
5 features are that you believe were available to Bard;  
6 correct?

7     A    I would need to look through it.

8     Q    If you would, please, towards the end of that  
9 paragraph.

10    A    Towards the end. Yes, I do.

11    Q    And those features include caudal anchors;

12 correct?

13 A That's correct.

14 Q They include penetration limiters?

15 A That's correct.

16 Q And they include a two-tiered design; correct?

17 A That's correct.

18 Q And they include a better -- and by better I mean

19 smoother or rounder, or rounded -- chamfer,

20 c-h-a-m-f-e-r, on the mouth of the cap of the filter;

21 correct?

22 A That's correct.

23 Q Now, if we can turn back to page 2, midway

24 through the middle paragraph, you state:

25 "Bard made a choice to design the

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1 Recovery filter without caudal anchors or

2 other features that would prevent and/or

3 minimize caudal migration."

4 Is that correct?

5 A That's correct.

6 Q And you do not identify anywhere in your report

7 any of what you term there as other features that would

8 prevent or minimize caudal migration, do you?

9 A Well, I would have to look through the document  
10 completely. Could you ask the question again, please.

11 Q Let me ask you this. You do not identify what  
12 the other features are beyond caudal anchors themselves  
13 that would prevent and/or minimize caudal migration, do  
14 you?

15 A Yeah. That's my recollection. Yes.

16 Q And we can look down at the next paragraph. And  
17 you make a similar statement about Bard making a choice  
18 to design the Recovery filter without perforation  
19 limiters or other features; correct?

20 A That's correct.

21 Q And you do not identify in your report what other  
22 features there are that would prevent and/or minimize  
23 perforation, do you?

24 A I believe that's the case, yes.

25 Q And turning to the next paragraph, you say:

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1 "Bard made a choice to design the  
2 Recovery filter without features that  
3 would prevent and/or minimize tilt."

4 Correct?

5 A Correct.

6 Q And you do not identify in your report what those  
7 features are, do you?

8 A Well, I think I do.

9 Q In what way?

10 A Well, I mention caudal anchors, and I mention  
11 perforation limiters, which would both contribute to  
12 minimizing the tendency for tilt to occur.

13 Q Beyond caudal anchors and penetration limiters,  
14 which we have discussed previously, you do not identify  
15 any other features -- quote, features, unquote that would  
16 prevent or minimize tilt, do you?

17 A I think I do. In the sense that I mention that  
18 the shape of a filter is something that can contribute to  
19 the tendency to tilt.

20 Q By the shape of the filter, are you talking about  
21 the absence of a two-tiered design?

22 A That would be one feature, yes.

23 Q And a two-tiered design feature would  
24 appropriately describe the design of the Simon Nitinol  
25 filter; correct?

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1 A That's correct.

2 Q So, other than caudal anchors, penetration

3 limiters, or aspects of the size or dimensions of the  
4 design, you do not identify any other features that would  
5 minimize or prevent tilt, do you?

6 A That's correct.

7 Q Would you agree that a specific patient's  
8 physical condition could implant the effectiveness of  
9 these safety features?

10 A Well, I'm not a doctor. So, I'm not sure how to  
11 answer that question.

12 Could you ask the question again, please.

13 Q Let me be more specific. Would you agree that a  
14 patient's inferior vena cava may be too large for caudal  
15 anchors to work?

16 A Yes. If the -- yes. I agree.

17 Q Would you agree that a patient's inferior vena  
18 cava filter -- I mean inferior vena cava may have a  
19 circumference too big for penetration limiters to work?

20 A I believe that would be the case too, yes.

21 Q And do you agree that a patient's inferior vena  
22 cava may be too large for a specific two-tiered design  
23 that you've identified to work?

24 A That would be the case too, yes.

25 Q And would you agree that a person's inferior vena

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1 cava could have too large of a circumference for the  
2 rounded cap you have advocated to make any difference?

3 A No. I disagree.

4 Q Explain the basis for that disagreement, please.

5 A Well, if the filter is able to remain in the vena  
6 cava, then the arms may touch the edge of the cap. And  
7 if the arms are touching the edge of the cap, then the  
8 chamfer would make a difference to the levels of strain  
9 that are generated there and that would have an implant  
10 on the likelihood of fatigue fracture occurring at that  
11 location.

12 Q Okay. I understand that's your opinion. But  
13 have done any testing to verify that opinion?

14 A No.

15 Q Would you agree that motion in the inferior vena  
16 cava -- of the inferior vena cava could implant the  
17 effectiveness of caudal anchors?

18 A Yes. I agree. Yes.

19 Q And would you agree that caval, c-a-v-a-l, motion  
20 could implant the effectiveness of penetration limiters?

21 A I'm not sure about that.

22 Q You're not sure one way or the other?

23 A Yes. I'm not sure one way or the other.

24 Q Would you agree that caval motion could implant

25 the efficacy of a two-tiered design?

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1 A I'm not sure about that as well.

2 Q Either way?

3 A Either way, yeah.

4 Q Would you agree that caval motion could implant  
5 the efficacy of a rounded cap?

6 A I think caval motion would make the efficacy of  
7 the rounded chamfer -- it would enhance the effect of it  
8 if anything.

9 THE REPORTER: Would enhance the effect of?

10 THE WITNESS: Of the rounded chamfer,

11 c-h-a-m-f-e-r.

12 BY MR. NORTH:

13 Q What is your basis for believing that caval  
14 motion would enhance the effectiveness of a rounded cap?

15 A Well cable motion would include the expansion and  
16 contraction of the vena cava width and that is what  
17 causes the arms to experience strain. And the rounded  
18 chamfers have the effect of helping to keep the level of  
19 strain down in the arms where they exit the cap.

20 And, therefore, that's my reason for saying  
21 that -- that caval motion, in the sense of expansion and

22 contraction of the vena cava, would make the chamfer an  
23 effective feature of the design.

24 Q Would you agree that the position of a patient's

25 inferior vena cava with respect to the spine could effect

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1 the effectiveness of caudal anchors?

2 A I'm not sure about that.

3 Q One way or the other?

4 A One way or the other.

5 Q Let's back up just a moment to what you just said

6 about caval motion enhancing the effectiveness of a

7 rounded cap. You have not conducted any testing to

8 verify that opinion, have you?

9 A I have not be conducted any bench testing, no, or  
10 animal testing.

11 Q Have you conducting any other type of testing to  
12 verify that particular opinion?

13 A Well, I've done calculations. But, no. I would  
14 define those as testing. But it's analysis of the  
15 strains which are present in the filter.

16 Q Would you agree that the position of a patient's  
17 inferior vena cava with respect to the spine could  
18 implant the effectiveness of penetration limiters?

19 A I'm not sure about that one way or the other.

20 Q The same question with regard to a two-tiered  
21 design.

22 A Again, I'm not sure about that one way or the  
23 other.

24 Q Would you agree that the position of a patient's

25 inferior vena cava with respect to the spine could

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1 implant the effectiveness of a rounded cap?

2 A I'm not sure about that one way or the other.

3 Q Now, this bullet point list that begins on page 1  
4 of your report -- what -- where did you obtain those  
5 facts, particular facts?

6 A I am relying on Dr. Hurst's report and  
7 Dr. Muehrcke's report for this information. I also  
8 looked at some imaging. And what I saw in the imaging is  
9 consistent with what is reported by Dr. Hurst and  
10 Dr. Muehrcke.

11 Q Do you recall which images you looked at?

12 A No, I don't recall exactly which images.

13 Q Do you identify in your report the images that  
14 you looked at?

15 A No. No.

16 Q When did you look at those images?

17 A Um, I don't recall.

18 Q Did you look at them yourself, or with someone  
19 else?

20 A I believe I looked at them with Dr. Hurst by  
21 video conference.

22 I may be mistaken by that. Because I've looked  
23 at other images with him. So, I may be mistaken about  
24 whether it was Mrs. Tinlin's that I looked at.

25 Q Okay. If I understand what you just said, you

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1 recall having looked at some images regarding some  
2 patient with Dr. Hurst via video conference at some  
3 point, but you cannot recall specifically whether that  
4 was with regard to Mrs. Tinlin?

5 A That's correct.

6 Q Do you recall having a video conference -- when  
7 was the last time you had a video conference with  
8 Dr. Hurst?

9 A The one I recall was in September.

10 Q Of 2018?

11 A Of 2018, yeah.

12 Q How long did that video conference last?

13 A Oh, it was an hour or so. About an hour.

14 Q Was Ms. Tinlin the subject of that video  
15 conference?

16 A I don't recall.

17 Q Did someone else attend that video conference  
18 with you and Dr. Hurst?

19 A One of the attorneys.

20 Q Do you recall which attorney?

21 A No. I don't know.

22 Q Was it Mr. Stoller?

23 A Um, I don't think so, no.

24 Q Have you had any video conferences with

25 Dr. Muehrcke?

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1 A I don't recall. No. I don't think so. No.

2 Q Did you actually read any medical records  
3 yourself other than to possibly, as you indicated, look  
4 at images?

5 A Well, I looked through the medical records of  
6 Mrs. Tinlin.

7 Q But you are not a medical doctor; correct?

8 A That's correct.

9 Q Now, these bullet points reflect the medical

10 issues specific to Ms. Tinlin that were important for  
11 your opinions in this case; correct?

12 A That's correct.

13 Q And you've already testified in three trials in  
14 the Bard IVC litigation?

15 A That's correct.

16 Q And you understand based on those trials that  
17 doctor -- Judge Campbell has a very strict rule that, if  
18 you do not disclose facts and opinions in your reports,  
19 you cannot testify about those things; correct?

20 A If you tell me that's the case, I would accept  
21 it, yes.

22 Q Well, you attempted to include all of the  
23 important things for the opinions about Mrs. Tinlin that  
24 you intend to explain to the jury in this report;  
25 correct?

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1 A That's correct.

2 Q You told us you're not a medical doctor and you  
3 don't hold yourself out as an expert in interpreting  
4 medical records; right?

5 A That's correct.

6 Q And you're not an expert when it comes to reading

7 imaging; correct?

8 A That's correct.

9 Q And you would defer in this case to all of the  
10 medical experts as far as those areas go?

11 A I would, yes.

12 Q Let's look at the first bullet point, which  
13 reads:

14 "On May 7, 2005, Mrs. Tinlin had a  
15 Bard Recovery inferior vena cava filter  
16 placed with no significant tilt."

17 Correct?

18 A Correct.

19 Q And what was the specific basis of that  
20 statement? Where did you get that information from?

21 A Dr. Hurst reported that in his -- in his report.

22 Q Did you do anything to verify the accuracy of  
23 that statement?

24 A No.

25 Q You used the phrase "significant tilt"; correct?

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1 A Yes.

2 Q Was that how Dr. Hurst had characterized the  
3 tilt?

4 A I believe that's the wording he used, yes.

5 Q What is a significant tilt in your opinion?

6 A Well, as an engineer, I would say it's more than  
7 five degrees.

8 Q Are you familiar with the guidelines produced by  
9 the Society of Interventional Radiology?

10 A I'm familiar with some aspects of those  
11 guidelines.

12 Q Do you know how they quantify a tilt in those  
13 guidelines?

14 A I'm not absolutely sure, no.

15 Q Do you agree that not all tilt of a filter is  
16 significant?

17 A I agree, yes.

18 Q And not all tilt of a filter can have clinical  
19 significance; correct?

20 A I agree.

21 Well --

22 MR. STOLLER: Foundation.

23 THE WITNESS: To the extent I'm an engineer and I  
24 understand that that would be the point of view of  
25 medical people, I agree.

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1 BY MR. NORTH:

2 Q Well, from that same perspective, it's your  
3 understanding that some tilt can occur in some patients  
4 yet not cause a physical problem for those patients?

5 A That's my understanding, yes.

6 Q Regardless of whether you characterize the tilt  
7 in this particular instance as significant, can you  
8 quantify what the amount of tilt was in terms of degrees?

9 A Not specifically in amount of degrees, no.

10 Q So, do you know whether it was more than five  
11 degrees or not?

12 A I don't know.

13 Q Are you aware that the Recovery filter is  
14 contraindicated in patients with inferior vena cavae  
15 measuring greater than 289 millimeters in diameters?

16 A That is my understanding, yes.

17 Q Do you know the size of Mrs. Tinlin's inferior  
18 vena cava when her Recover filter was implanted on May 7  
19 of 2005?

20 A Well, not on May 7.

21 Q The way you say that, are you indicating that you  
22 know the size of her inferior vena cava at some other  
23 point?

24 A Dr. Hurst reports I think it's three days before

25 May the 7th that he measured it at 2.5 centimeters, or 25

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1 millimeters by 15 millimeters was the size that he  
2 reported.

3 Q And your source of that information is just  
4 Dr. Hurst's report?

5 A Dr. Hurst's report, yes.

6 Q You did not make any independent assessment of  
7 the size of Mrs. Tinlin's inferior vena cava at any  
8 juncture; correct?

9 A That's right.

10 Q And you do not have any information as you sit  
11 here as to the size of her inferior vena cava on the very  
12 day the filter was implanted, May 7 of 2005?

13 A That's correct.

14 Q Have you seen any medical records beyond  
15 Dr. Hurst's report that talk about the size of her  
16 inferior vena cava?

17 A I don't recall, no.

18 Q Do you know the name of the implanting physician,  
19 the doctor who put this filter in her?

20 A No. I don't recall his name or her name.

21 Q Do you have any information whether he or she

22 measured the diameter of Mrs. Tinlin's inferior vena  
23 cava?

24 A I don't have any information about that.

25 Q Did you review the deposition testimony of any of  
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1 her treating physicians?

2 A No. I have not.

3 Q Would you agree that, if Ms. Tinlin's inferior  
4 vena cava measured between 28 and 29 millimeters at the  
5 time of implant, that it would have been -- the filter --  
6 this filter, Recovery filter, would have been  
7 contraindicated for use in her?

8 MR. STOLLER: Object to foundation.

9 THE WITNESS: That's my understanding.

10 BY MR. NORTH:

11 Q And as we talked about earlier, the size of the  
12 inferior vena cava could affect effectiveness -- could  
13 affect the effectiveness of penetration limiters or  
14 caudal anchors?

15 MR. STOLLER: Object to foundation.

16 THE WITNESS: I agree, yes.

17 BY MR. NORTH:

18 Q Nothing in your report discusses the size of

19 Mrs. Tinlin's inferior vena cava, does it?

20 A That's correct.

21 Q And you have no information as to the size of

22 that inferior vena cava on the very day the filter was

23 implanted?

24 A That's correct.

25 Q Look at the second bullet point. You state, and

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1 I quote:

2 "On May 8, 2005, the filter is

3 identified as having 18 degrees of tilt

4 with its tip against the anterior wall of

5 the IVC and with caudal migration of 9

6 millimeters. All six of its arms and two

7 of its legs are identified as having

8 penetrated the wall of the IVC."

9 Correct?

10 A That's correct.

11 Q And that was one day after implant; correct?

12 A That's correct.

13 Q And you told us and mentioned in the first bullet

14 point right after implant the filter had no significant

15 tilt?

16 A That's correct.

17 Q And would you agree that tilting 18 degrees in 24  
18 hours is pretty significant?

19 A It is, yes.

20 Q Do you know if that test was performed or that  
21 measurement of the tilt was identified a full 24 hours  
22 after implant, or some lesser period of time?

23 A I don't know exactly time --

24 MR. STOLLER: Object to form.

25 THE WITNESS: I'm sorry.

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1 I don't know exactly what time of day compared to  
2 the implantation that was carried out, the measurement.

3 BY MR. NORTH:

4 Q Is there anything significant to your opinion  
5 that the tilt and perforations occurred in such an  
6 temporal proximity to the implant?

7 A Could you repeat the question, please.

8 Q Is there anything significant to your opinions in  
9 the fact that the tilt and perforation of this filter  
10 occurred so soon after the implant?

11 A Yes.

12 Q And what is that?

13 A Well, I've stated the opinion that the Recovery  
14 filter is unstable and tilts very easily. And, so,  
15 therefore, it's consistent with my assessment that --  
16 that the Recovery filter will tilt readily.

17 Q Would you agree that tilt and perforation can  
18 occur more readily if the Recovery filter is implanted in  
19 a patient with an inferior vena cava of greater diameter  
20 than the device is indicated for?

21 MR. STOLLER: Object to the form.

22 THE WITNESS: Um, yes.

23 BY MR. NORTH:

24 Q This second bullet point -- did you draw that  
25 from Dr. Hurst's report again?

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1 A That's correct.

2 Q Did you review medical records to independently  
3 verify that statement?

4 A Well, I reviewed medical records. But I didn't  
5 tie it together with this specific -- specific  
6 observation. I didn't tie the medical records together  
7 with this specific observation.

8 Q Did you tie the medical records together with any  
9 of these specific observations?

10 A No. Not any -- not any specific observation  
11 other than a more generic one that there was tilt and  
12 perforation and fracture of the filter that took place.

13 Q The third bullet point states, and I quote again:  
14 "The filter subsequently fractured and  
15 the fractured arm embolized to the right  
16 ventricle. Therefore, a second arm  
17 fractured and embolized to the right  
18 ventricle."

19 MR. STOLLER: You said therefore and not  
20 thereafter.

21 MR. NORTH: What?

22 MR. STOLLER: You said therefore and not  
23 thereafter.

24 BY MR. NORTH:

25 Q Oh.

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1 "Thereafter a second arm fractured and  
2 embolized to the right ventricle."

3 Correct?

4 A Correct.

5 Q You say that the filter subsequently fractured;  
6 correct?

7 A You mean in a lower bullet point?

8 Q Yeah. In that same bullet point.

9 A In the same bullet point?

10 Q You indicate that the filter subsequently -- and  
11 that is the word you used -- subsequently -- fractured;  
12 correct?

13 A Oh, yes, I see that. Yes, I see that. Yes.

14 Q When exactly did it fracture?

15 A When exactly?

16 Q Yeah.

17 A No.

18 Q Do you know how long after implantation?

19 A I don't know, no. Although it was after May the  
20 8th, 2005, and before June 11, 2007, is my understanding.

21 Q Okay. Let's drop down a couple of bullet points  
22 to the fifth bullet point.

23 You state there:

24 "Subsequently a third arm fractured

25 and embolized to the pulmonary artery."

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1 Correct?

2 A Correct.

3 Q When did that third arm fracture?

4 A Sometime between June 11, 2007, and February 3,  
5 2012.

6 Q Do you know when that particular fracture was  
7 first observed?

8 A No. I don't know the exact date.

9 Q Do you know whether it embolized?

10 A I don't know that date.

11 Q Do you know when the embolization was first  
12 discovered?

13 A No.

14 Q Do you know how long -- what period of time  
15 transpired between the fracture event and the  
16 embolization of the fragment to the pulmonary artery?

17 A No, I don't.

18 Q Since you are not a doctor, it's not within your  
19 expertise to testify as to whether a retained filter  
20 strut in the pulmonary artery is a clinically significant  
21 event; correct?

22 A No. I --

23 Could you repeat the question. So I can --

24 MR. NORTH: Could you repeat that, please.

25 (Record read as follows:

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1                   "QUESTION: Since you are not a  
2                   doctor, it's not within your expertise to  
3                   testify as to whether a retained filter  
4                   strut in the pulmonary artery is a  
5                   clinically significant event; correct?" )

6                   THE WITNESS: Correct.

7 BY MR. NORTH:

8       Q     Okay. Let's drop down to the last bullet point  
9     on that page, which I believe is the seventh overall.

10   And that one states:

11                   "Subsequently a fifth arm fractured  
12                   and embolized to the pulmonary artery."

13                   Correct?

14       A     That's correct.

15       Q     And, again, when you say subsequently, can you  
16     identify when that fifth arm fractured?

17       A     Well, it was after February 3, 2012, and before  
18     July 30, 2012 -- sorry. It was after February the 3rd,  
19     2012, and before July 30th of 2013.

20       Q     Do you know when that fracture event was first  
21     observed by a physician?

22       A     No.

23       Q     Are you able to identify when that strut  
24     embolized to the pulmonary artery?

25       A     No.

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1 Q Can you say when the embolization of that strut  
2 to the pulmonary artery was first observed?

3 A No.

4 Q Now, let's go to the next page, if we could. And  
5 the first bullet point on page 2 says:

6 "On July 30, 2013, Mrs. Tinlin  
7 underwent open-heart surgery during which  
8 one fractured filter arm was success --  
9 was removed successfully but the other  
10 fractured filter arm in her heart could  
11 not be found."

12 Correct?

13 A That's correct.

14 Q What is your basis for saying that the other  
15 fractured filter arm in the heart could not be found? Is  
16 that Dr. Hurst?

17 A That's from Dr. Hurst's report, that's correct.

18 Q What evidence do you have other than Dr. Hurst's  
19 statement in his report that the second fractured filter  
20 arm was actually in the heart as opposed to some other  
21 location in the body?

22 A I have no other evidence.

23 Q The last bullet point says that Mrs. Tinlin's  
24 Recovery filter was used as intended, properly implanted,

25 and there were no other causes of the failures of that

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1 filter; correct?

2 A Correct.

3 Q But you would agree that, if Mrs. Tinlin's  
4 inferior vena cava was larger than the Recovery filter  
5 was indicated for, that that could have contributed to  
6 what you termed the failures of that filter; correct?

7 A That's correct.

8 Q How do you know that the filter was properly  
9 implanted?

10 A Because that is what was reported by Dr. Hurst  
11 and Dr. Muehrcke.

12 Q Did you do anything to verify that statement?

13 A No, I did not.

14 Q And since you're not a medical doctor, you don't  
15 hold yourself out as an expert as to whether or not an  
16 inferior vena cava filter is properly implanted, do you?

17 A That's correct.

18 Q There is nothing in your report that addresses  
19 the effect of -- well, let -- strike that. Let me start

20 over.

21           There is nothing in your report discussing how  
22 caudal anchors or penetration limiters would operate in a  
23 situation where the inferior vena cava is larger than  
24 indicated for the filter; correct?

25       A    That's correct.

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1       Q    And, in fact, there is nothing in your report  
2 discussing how any feature of the filter would perform in  
3 an inferior vena cava that's larger than is indicated for  
4 the device; right?

5       A    That's correct.

6       Q    You say that the filter was, in that bullet  
7 point, "used as intended." What do you mean by that  
8 statement?

9       A    Well, my understanding, as an engineer, is that  
10 it was implanted in the inferior vena cava in an attempt  
11 to trap clots.

12      Q    And, again, the source of that statement is  
13 solely Dr. Hurst's report; correct?

14      A    That's correct.

15           And I guess I should amplify that it was  
16 implanted according to -- well, my understanding is that

17 it was implanted according to the instructions for use.

18 Q And that's based on Dr. Hurst; correct?

19 A That's correct, yes.

20 Q Do you know whether any of Mrs. Tinlin's treating  
21 doctors recommended that the filter be removed?

22 A I don't -- I'm not aware of any advice like that.

23 Q Do you know whether any of Mrs. Tinlin's  
24 physicians expected her Recovery filter to be removed  
25 after her need for protection had passed?

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1 A No. I don't know that.

2 Q There is nothing in your report about discussing  
3 whether Mrs. Tinlin's filter should have been removed;  
4 correct?

5 A That's correct.

6 Q And there is nothing in your report discussing  
7 whether her doctors advised that it should be removed?

8 A That's correct.

9 Q If the filter had been removed from Mrs. Tinlin  
10 after her need for the caval protection had passed,  
11 you're unable to say whether that would have prevented  
12 any fracture or embolization from occurring; correct?

13 A Could you ask me the question again, please.

14 Q Yeah. That's -- agreed. Confusing.

15 A Sorry.

16 Q So, we don't know whether -- or you don't know  
17 when Mrs. Tinlin's need for the protection of that filter  
18 passed or ended?

19 A I don't know that.

20 Q So, you don't know if it ended before the  
21 fractures and embolization occurred, or after; correct?

22 A That's correct.

23 Q And if her need for protection had ended prior to  
24 the fractures occurring and if the filter had been

25 removed prior, then obviously no fractures or

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1 embolization would have occurred?

2 MR. STOLLER: Foundation.

3 THE WITNESS: That -- no fractures of that filter  
4 within her would have occurred, yeah, that's correct.

5 BY MR. NORTH:

6 Q Other than fatigue, what are the other causes,  
7 potential causes, of fracture in a Nitinol inferior vena  
8 cava filter?

9 A Well, it can be overloaded so that the single  
10 incidence of load is too great for the material and that

11 can cause it to fracture.

12 Q What can cause that sort of overload inside the  
13 inferior vena cava?

14 A Extreme motions or extreme compression of the  
15 vena cava would be one example of what could cause that.

16 Q Any other potential causes?

17 A Well, I -- expansion could cause it as well.

18 Expansion of the filter width, the width between the  
19 feet, or the arms, or the hands.

20 Q And would you agree that those sort of scenarios  
21 you're discussing -- the compression or the expansion --  
22 could be severe enough that the design alternatives you  
23 have proposed would -- could -- may not prevent fracture?

24 A That -- they would have -- they would -- it would  
25 be -- they would have no association with that fracture,

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1 that's correct, yes.

2 Q Well, that wasn't quite my question.

3 If the compression or the expansion that you  
4 believe could be a potential cause of fracture was severe  
5 enough, it's possible that the device design attributes  
6 you proposed, such as caudal anchor or penetration  
7 limiters, would not be able to prevent the fracture;

8 correct?

9 A That's correct.

10 Q Obviously you did not physically examine  
11 Mrs. Tinlin; correct?

12 A No, I did not.

13 Q Have you ever seen her?

14 A I've never met her, no.

15 Q Have you ever spoken with her?

16 A No, I have not.

17 Q You have never examined the filter she received;  
18 correct?

19 A That's correct.

20 Q And you've never examined any component or piece  
21 of the filter; correct?

22 A That's correct.

23 Q And would you agree that microscopic examination  
24 of a fracture filter component can definitively determine  
25 whether fatigue was the cause of the fracture?

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1 A That's correct.

2 Q And since you've never seen Mrs. Tinlin's filter  
3 or any component of it, you have never examined it under  
4 a microscope to determine of the cause of the fracture;

5 right?

6 A That's correct.

7 Q If we look at page 6 of your report at the top,  
8 you state there, and I quote:

9 "To the extent Mrs. Tinlin's fractured  
10 filter body and limbs are removed at some  
11 point while this litigation is pending,  
12 which is not expected, I reserve the  
13 right to examine those fragments and  
14 supplement my opinions."

15 Correct?

16 A Correct.

17 Q And you believe that microscopic examination  
18 might confirm your opinions; correct?

19 A That's correct.

20 Q But it's also possible that microscopic  
21 examinations could disprove your opinions; correct?

22 A Could disprove some of my opinions, yes.

23 Q Now, your report discusses caudal anchors,  
24 penetration limiters, a two-tier design, and a smoother  
25 cap as features you believe would have improved the

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1 design of the Recovery filter; correct?

2 A That's correct.

3 Q Now, there are no actual design drawings in your  
4 report for these design attributes you describe; correct?

5 A Correct.

6 Q Are you capable of create -- in your expertise of  
7 creating design drawings of attributes for the filter  
8 like that?

9 A Yes, I am.

10 Q Are all caudal anchors the same size?

11 A No.

12 Q Are all of the same design?

13 A No.

14 Q Are they all equally effective?

15 A Their effectiveness would vary according to their  
16 design.

17 Q Are all penetration limiters the same design?

18 A No.

19 Q Are all equally effective?

20 A No.

21 Q Is there more than one variation of a two-tiered  
22 design?

23 A Yes.

24 Q So, all two-tiered designs are not the same;  
25 correct?

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1 A They are not the same.

2 Q And all two-tiered designs are not equally  
3 effective?

4 A Yes. I would accept that. Yes.

5 Q And you did not include in your report any design  
6 drawing of a two-tiered design; correct?

7 A Not in this report -- I didn't provide any design  
8 drawings. I provided an image of the Simon Nitinol  
9 filter, but no design drawings.

10 Q So, when you have proposed a two-tiered design as  
11 an alternative to the Recovery filter, your proposal is  
12 essentially the Simon Nitinol filter?

13 A That's correct.

14 Q Your report does not propose any specific  
15 dimensions for the caudal anchors you suggest; correct?

16 A That's correct.

17 Q It does not propose any specific dimensions for  
18 the penetration limiters?

19 A Correct.

20 Q And other than to provide an image of the Simon  
21 Nitinol filter, you don't provide any dimensions of the  
22 two-tiered design; correct?

23 A That's correct.

24 Q There is no photograph -- well, no picture or

25 graphic depiction of the alternative filter that you

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1 believe should have been designed?

2 A No.

3 Q Your report does not criticize Bard's use of the  
4 material Nitinol for the filter, does it?

5 A No, it does not.

6 Q And your report does not address what sort of  
7 material should be used for a device such as this, does  
8 it?

9 A That's correct.

10 Q And it does not propose an alternative material  
11 to the Nitinol that was used?

12 A That's correct.

13 Q Now, let's go beyond this specific report. Am I  
14 correct that in none of the expert reports you have  
15 prepared in this litigation have you provided any design  
16 drawings of caudal anchors that you believe should have  
17 been implemented?

18 A That's correct.

19 Q And is it correct that in all of your expert

20 reports in this litigation, you have never prepared -- or  
21 proposed any design drawings for the penetration limiters  
22 you suggest?

23 A That's correct.

24 Q And is it correct that in this litigation you

25 have never in any of your expert reports provided design

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1 drawings or graphic depictions for two-tiered design you  
2 propose other than to provide an image of the Simon  
3 Nitinol filter?

4 A That's correct.

5 Q And you have not tried to devise any two-tiered  
6 design other than the dimensions of the Simon Nitinol  
7 filter itself as a two-tiered design that would have  
8 improved the performance; correct?

9 A That's correct.

10 Q Now, with regard specifically to the caudal  
11 anchors -- well, let me back up.

12 In some of your previous reports you -- to do  
13 those reports, you did a number of calculations; correct?

14 A That's correct.

15 Q But you have never done any calculations focused  
16 specifically on caudal anchors and what effect they would

17 have in improving the performance of the filter; correct?

18 A That's correct.

19 Q And, likewise, you have never done any specific

20 calculations regarding the effect that penetration

21 limiters would have on the filter?

22 A That's correct.

23 Q And you have never done any specific calculations

24 as to the effect that a two-tiered design would have on

25 the filter?

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1 A That's correct.

2 Q And you have never done any specific calculations

3 as to the effect that the rounded chamfer would have on

4 the filter; correct?

5 A No. I disagree with that.

6 Q Okay. Tell me the basis for that.

7 A Well, in the MDL report I present calculations

8 for the effect of the rounded chamfer in regard to the

9 levels of strain and stress which are associated with it

10 in the adjacent strut.

11 Q Would you agree with me that in your view a

12 filter that had the rounded chamfer, like you've

13 discussed, but did not have penetration limiters, caudal

14 anchors, or a two-tiered design could fracture?

15 A Yes. It could.

16 Q In other words, the rounded cap, in the absence

17 of those other design features, would not necessarily

18 prevent a fracture; correct?

19 A That's correct.

20 Q Do you know anything about some of the other

21 medical conditions Mrs. Tinlin has had or does have now?

22 A No, I do not.

23 Q And you don't have any information concerning the

24 tissue quality firmness or flexibility of her vena cava,

25 do you?

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1 A I do not, no.

2 Q Or what her blood flows was or is?

3 A No.

4 Q What her respiration rate was --

5 A No, I do not.

6 Q -- or is?

7 What her experiences have been with Valsalva?

8 A No.

9 Q And neither Dr. Hurst nor Dr. Muehrcke or any

10 other doctor have given you any such information

11 regarding those things, have they?

12 A That's correct.

13 Q And as a part of your work in this case, you did

14 not investigate anything specific about Mrs. Tinlin's

15 anatomy; correct?

16 A Correct.

17 Q And other than to read the reports of Drs. Hurst

18 and Muehrcke, you did not investigate anything about her

19 medical conditions; correct?

20 A That's correct.

21 Q Are you aware that Mrs. Tinlin's physicians

22 recommended and prescribed a retrievable filter for her?

23 A I'm not aware of their recommendations.

24 Q Let's turn to page 3 of your report, if we could.

25 At the bottom of the first full paragraph, after you've

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1 discussed some of these alternative design features, you

2 state, and I quote:

3 "Many of these design features existed

4 in other IVC filter products already on

5 the market, including the Simon Nitinol

6 filter, the Cook Guther Tulip filter, the

7 Greenfield filter, and the Cook Bird's

8                   Nest filter."

9                   Correct?

10          A      Correct.

11          Q      Do you know whether any of those retrievers --

12         any of those filters you identify are retrievable?

13          A      Yes. The Gunther Tulip filter is retrievable.

14          Q      Do you know whether the Cook -- well, the others  
15         are not?

16          A      Oh, sorry. Yes, the others are not.

17          Q      Do you know, with regard to the Cook Gunther  
18         Tulip filter, whether there was a limitation on the  
19         amount of time it could be implanted before retrieval?

20          A      Yes.

21          Q      And what was that limitation?

22          A      It's on the order of seven to ten days.

23          Q      And, by comparison, what was the indwell time  
24         that would be permissible or okay for a Recovery filter?

25          A      Recovery filter is optional in that it could be

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1   left in on a permanent basis, according to the

2   instructions for use, is my understanding.

3          Q      Could it be retrieved later than seven to ten  
4   days after implant?

5 A It's my understanding that it can be retrieved  
6 beyond seven days.

7 MR. STOLLER: Object to foundation.

8 BY MR. NORTH:

9 Q Are you aware of medical studies and reports  
10 indicating the successful retrieval of the Recovery  
11 filter many months after it was implanted?

12 A I am.

13 Q And are you aware of medical reports in the  
14 literature of Recovery filters being retrieved more than  
15 a year after implant?

16 A I am.

17 Q And while you're not a doctor, is it your  
18 understanding that there can be a medical benefit to a  
19 filter that has a longer permissible indwell time?

20 A That's my understanding, as an engineer, of what  
21 the point of view of the medical people is; yes.

22 Q So, the fact that the Recovery filter could be  
23 implanted months or even a year later might make it more  
24 beneficial to a particular patient than a filter that had  
25 to be removed within seven to ten days?

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1 A You said "implanted" many -- a long time

2 afterwards. I think you meant retrieved a long time  
3 afterwards.

4 Q Yes. Let me state the question again so it's  
5 clear.

6 Therefore, you would agree that a filter that can  
7 be retrieved months or even a year after the time of  
8 implant might have a superior medical benefit for some  
9 patients over a filter that had to be removed in seven to  
10 ten days?

11 A Yes. I agree.

12 Q And you don't know whether that was the case with  
13 Mrs. Tinlin or not, do you?

14 A No, I do not.

15 Q And you do not know whether a filter such as the  
16 Cook Gunther Tulip filter that had to be removed within  
17 ten days would have been able to be used with  
18 Mrs. Tinlin?

19 A Well, it doesn't have to be removed within ten  
20 days. It can also be left in. But I don't know whether  
21 that would have been a better filter for her or not.

22 Q Well, you don't know whether her need to have a  
23 filter would have resolved itself within ten days;  
24 correct?

25 A Correct.

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1 Q Because of what you don't know regarding  
2 Mrs. Tinlin's condition, you cannot say that the Simon  
3 Nitinol filter would have been a viable option for her;  
4 correct?

5 A Correct.

6 MR. STOLLER: Object.

7 BY MR. NORTH:

8 Q And the same is true with the Greenfield?

9 A Correct.

10 Q And because you don't know how long she needed  
11 the filter and what her doctors wanted with regard to  
12 whether she should have a retrievable or permanent  
13 filter, you cannot say whether the Tulip was a viable  
14 option; correct?

15 MR. STOLLER: Object to foundation.

16 THE WITNESS: Correct.

17 BY MR. NORTH:

18 Q And not say whether the Bird's Nest would have  
19 been a viable option; correct?

20 MR. STOLLER: Foundation.

21 THE WITNESS: Correct.

22 BY MR. NORTH:

23 Q And, therefore, you're unable to say whether any

24 retrievable filter available on the market at that time

25 would have been a better option, or a viable option, for

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1 Mrs. Tinlin given her particular medical situation?

2 A That's correct.

3 MR. STOLLER: Object. Foundation.

4 BY MR. NORTH:

5 Q You have done no analysis to determine what

6 changes you would have to make to the Simon Nitinol to

7 make it retrievable; correct?

8 A That's correct.

9 Q And you have done no analysis to determine what

10 changes you would have to make to the Greenfield filter

11 to make it retrievable; correct?

12 A Correct.

13 Q Same is true with the Tulip?

14 A Well, I have, but I'm not at liberty to describe

15 those -- those assessments.

16 Q So, those do not form a basis of your opinion --

17 A No.

18 Q -- in this case?

19 A They don't form a basis for my opinion in this

20 case, correct.

21 Q And the same is true with Bird's Nest. You have  
22 done no analysis to determine what changes you would have  
23 to make to the Bird's Nest to make it retrievable;  
24 correct?

25 A That's correct.

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1 Q You mentioned two Cook filters by name in your  
2 report -- the Tulip and the Bird's Nest -- correct?

3 A Correct.

4 Q And as we've discussed, you previously testified  
5 that Cook's -- well, as we've discussed in the past, you  
6 have previously testified that Cook's filters tilt more  
7 than any other filters the marketplace; correct?

8 A Correct.

9 Q And as a consequence, you cannot say that --  
10 well, let me back up.

11 And Cook filters do fracture on occasion;  
12 correct?

13 A That's correct.

14 Q And, in fact, in the case you testified in last  
15 week involving a Cook filter, that particular filter had  
16 fractured; correct?

17 A That's correct.

18           But it wasn't -- it's not a Tulip filter.

19   Q    Well, what filter is it?

20   A    It's just -- it's a Cook Celect filter.

21   Q    Okay. But it was one of Cook's filters?

22   A    Correct, yes.

23   Q    Given the propensity that you've testified about

24   for Cook filters to penetrate -- I mean to tilt, you

25   cannot say one way or the other whether Mrs. Tinlin's

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1   injuries would have been avoided had she received a Tulip

2   or Bird's Nest filter, can you?

3   A    That's correct.

4   Q    And, similarly, you cannot say that Mrs. Tinlin's

5   risk for injuries would have been reduced had she

6   received a Tulip or Bird's Nest filter?

7   A    That's correct.

8   Q    You have performed no calculations in this case

9   to determine whether the Greenfield filter has a lower

10   risk of tilt than the Recovery filter; is that correct?

11   A    That's correct.

12   Q    And the same would be true as to whether the

13   Greenfield filter has a lower risk of migration,

14   perforation, fracture, or embolization?

15 A That's correct.

16 Q And you've performed no calculations in this case  
17 to determine whether the Tulip filter has a lower risk of  
18 tilt than the Recovery filter; correct?

19 A That's correct. Not in this case.

20 Q Have you in this litigation?

21 A I've made assessment -- on this litigation?

22 Q Yes.

23 A No. No. No.

24 Q And any assessments you've made in other

25 litigation are not forming the basis of your opinions

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1 here?

2 A That's correct.

3 Q And in this litigation and as a part of your

4 opinions in this litigation you have performed no

5 calculations to determine whether the Bird's Nest filter

6 has a lower risk of tilt, migration, perforation,

7 fracture, or embolization than the Recovery filter;

8 correct?

9 A That's correct.

10 Q It is possible that the addition of caudal

11 anchors to the Recovery filter would not have eliminated

12 the risk of caudal migration; correct?

13 A Correct.

14 Q And it's entirely possible that adding those  
15 anchors would not have eliminated the risk of migration,  
16 fracture, or embolization?

17 A That's correct. Would not have eliminated it,  
18 correct.

19 Q And you have done no calculations as to the  
20 extent of which caudal anchors would have reduced the  
21 risk of penetration, tilt, migration, fracture, or  
22 embolization; correct?

23 A That's correct.

24 Q And it's entirely possible that adding  
25 penetration limiters to the Recovery filter would not  
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1 have eliminated the risk of penetration; correct?

2 A Would not have eliminated the risk, correct.

3 Q Right.

4 And it's entirely possible that adding the  
5 penetration limiters would not have eliminated the risk  
6 of tilt, migration, fracture, or embolization; correct?

7 A Correct. Would not have eliminated them.

8 Correct.

9 Q But you have done no calculations to attempt to  
10 quantify the extent to which adding penetration limiters  
11 to the Recovery filter would reduce the risk of  
12 penetration, tilt, migration, fracture, or embolization;  
13 correct?

14 A That's correct.

15 Q It's entirely possible that using a two-tiered  
16 design would not have prevented Mrs. Tinlin from  
17 sustaining any of the injuries she alleges in this case;  
18 correct?

19 A That's correct.

20 Sorry. Could repeat the question.

21 Q It's entirely possible that using a two-tiered  
22 design would not have prevented Mrs. Tinlin from  
23 sustaining any of the injuries she alleges in this case?

24 A Yes. I agree.

25 Q And you have done no calculations in this

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1 litigation as to -- to try to quantify the extent to  
2 which a two-tiered design might reduce the risk of  
3 Mrs. Tinlin having sustained the injuries she did?

4 A That's correct.

5 Q It's entirely possible that improving the shape

6 of the cap, as you suggest, would not have prevented  
7 Mrs. Tinlin from sustaining any of the injuries she  
8 alleges; correct?

9 A That's correct.

10 Q And you have performed no calculations in this  
11 litigation to quantify the extent to which a cap would  
12 have reduced the risk to Mrs. Tinlin of sustaining the  
13 injuries?

14 A That's correct.

15 Q And, therefore, it is possible that adding all of  
16 the design features you suggest would not have prevented  
17 Mrs. Tinlin from sustaining the injuries she alleges;  
18 correct?

19 A That's correct.

20 Q You are not aware of any single IVC filter that  
21 carries no risk of fractures; correct?

22 A I'm not aware of any, that's correct.

23 MR. NORTH: Why don't we take a break. We've  
24 been going 75 minutes, I think.

25 MR. STOLLER: Fine.

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1 THE VIDEOGRAPHER: The time is 11:15 a.m., and we  
2 are off the record.

3 (Recess.)

4 THE VIDEOGRAPHER: The time is 11:26 a.m., and  
5 we're back on the record.

6 BY MR. NORTH:

7 Q Dr. McMeeking, you agree that all IVC filters can  
8 tilt; correct?

9 A I'm not sure I agree with that. But many of them  
10 do tilt, yes, or can tilt.

11 Q And all IVC filters can penetrate?

12 A Yes. I agree with that.

13 Q At IVC filters can migrate; correct?

14 A I agree with that, yes.

15 Q And all IVC filters can fracture?

16 A I think that's likely the case, yes, I agree.

17 Q Now, you said -- seemed to apply that not all IVC  
18 filters can tilt. Are there some that you believe cannot  
19 tilt?

20 A I think the ones that are quite cylindrical in  
21 shape are perhaps unable to tilt.

22 Q But many of the filters that are on the market  
23 can tilt; correct?

24 A That's correct.

25 Q As we sit here today, Doctor, you cannot say to a  
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1 reasonable degree of engineering certainty that the  
2 design changes you discuss in your report would have  
3 prevented Mrs. Tinlin's injuries, can you?

4 A That's correct.

5 Q And you cannot say by what percentage the risk  
6 would have been reduced with these design changes, can  
7 you?

8 A That's correct.

9 Q Is there anywhere in your report where you  
10 outline the specific health conditions Mrs. Tinlin  
11 suffers that might have implanted her filter in and its  
12 performance?

13 A No.

14 Q Was that significant to you in preparing your  
15 report?

16 A Could you repeat the question.

17 Q Was that significant to you in preparing her  
18 report -- your report?

19 A You mean leaving it out?

20 Q Was the fact -- well, were any specific health  
21 conditions that she suffers that might have impacted her  
22 filter or its performance -- was any of that important to  
23 you in coming up with your opinions?

24 A No. It was not.

25 Q And you have no idea whether Mrs. Tinlin suffered

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1 from any particular health condition that could have  
2 increased the likelihood that her Recovery filter would  
3 have tilted, migrated, perforated, or fractured; correct?

4 A Correct.

5 Q You understand that Mrs. Tinlin needed an  
6 inferior vena cava filter; correct?

7 MR. STOLLER: Foundation.

8 THE WITNESS: Well, I assume, because her doctors  
9 prescribed one, that she was considered to need one, yes.

10 BY MR. NORTH:

11 Q And, therefore, you understand that at least her  
12 doctors thought she could have died had she not received  
13 a filter; correct?

14 MR. STOLLER: Objection. Foundation.

15 THE WITNESS: I'm not sure if they thought she  
16 would have died. But I believe that they assessed that  
17 it would avoid problems that she might face in terms of  
18 her health.

19 BY MR. NORTH:

20 Q You have no reason to dispute whether or not

21 Mrs. Tinlin's Recovery filter might have saved her life;  
22 correct?

23 A I have no reason to dispute that, no.

24 Q You did no additional testing for your report in  
25 this case; correct?

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1 A That's correct.

2 Q And you did no additional calculations for your  
3 report in this case?

4 A That's correct.

5 Q None of the opinions you provide in this report  
6 regarding design alternatives have been published in any  
7 literature by you, have they?

8 A By me, no. Correct.

9 Q Are you aware of any literature regarding  
10 penetration limiters or caudal anchors and their efficacy  
11 on filters?

12 A Well, yes.

13 Q And what is that?

14 A There are papers that look at clinical experience  
15 with filters that have and do not have those features on  
16 them.

17 Q I'm talking about from an engineering standpoint.

18 Are you aware of any publications that analyze from an  
19 engineering perspective how caudal anchors or penetration  
20 limiters perform?

21 A Not from an engineering assessment, no.

22 Q And you haven't published anything from an  
23 engineering perspective regarding penetration limiters,  
24 caudal anchors, two-tiered design, or a rounded chamfer;  
25 correct?

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1 A That's correct.

2 Q And, therefore, your opinions regarding those  
3 design alternatives have not been peer reviewed, have  
4 they?

5 A Not directly, no.

6 Q You're not aware of any industry or government  
7 standards that would require any of the design  
8 alternatives that you've proposed; correct?

9 A Yes. I'm aware of some.

10 Q What would those be?

11 A In the sense that companies are expected to  
12 reduce all risks to the extent practicable.

13 Q I'm talking about these specific design  
14 attributes: Penetration limiters, caudal anchors,

15 two-tiered design, rounded chamfer. You're not aware of  
16 any industry standards or governmental regulations that  
17 require those specific design features; correct?

18 A That's correct.

19 Q And you're not aware of any standards or  
20 regulations that recommend those specific design  
21 features?

22 A That's correct.

23 Q And you are aware, of course, that Bard has  
24 retained its own engineers in this case; correct?

25 A You mean as experts?

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1 Q Yes.

2 A Yes. I am, yes.

3 Q And you know who Dr. Paul Bryant is; correct?

4 A That's correct.

5 Q Have you ever published anything about  
6 Dr. Bryant's opinions in this litigation?

7 A Published in a sense of in public literature?

8 Q Yes.

9 A No, I have not.

10 Q Did you bring any of your other past reports with  
11 you today?

12 A I brought the MDL report.

13 Q Do you have the March 3, 2017, MDL report?

14 A That's correct. Yes, I do.

15 Q Could we look at that a minute?

16 A Certainly.

17 MS. NORTH: Could we put an exhibit sticker on

18 his report, and I'll just substitute one later.

19 THE WITNESS: Can I give you the one with black-

20 and-white pictures for the exhibit?

21 MR. NORTH: Yeah. I couldn't care less.

22 Perfect. I apologize. I thought I had that, and it's

23 not here.

24 (Whereupon Defendants' Exhibit 2 was

25 marked for identification by the court

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1 reporter and is attached hereto.)

2 MR. NORTH: I think I have a clip.

3 THE WITNESS: I'm going to look at the one with

4 color pictures.

5 BY MR. NORTH:

6 Q That's fine.

7 But I want to look at a diagram on page 47. And

8 there is a Table 1; correct?

9 A Yes, correct.

10 Q I'm sorry. Not diagram. A table.

11 Tell me what this table reflects.

12 A This table reflects calculations that I did for  
13 the Recovery filter.

14 Q Now, the model you employed for that fatigue  
15 testing went only up to the elbows of the struts; is that  
16 correct?

17 A Well, it was fatigue tested, per se, but the  
18 model went only to the elbow of the upper arm.

19 Q Just so we're using the same nomenclature, what  
20 would you call the testing if not fatigue testing?

21 A I would call it calculations of strain.

22 Q Okay. And so your calculations of strain only  
23 went up to the elbow of the strut as opposed to the  
24 entire strut; correct?

25 MR. STOLLER: Object to the form.

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1 THE WITNESS: Well, I -- I used a model in which  
2 I considered the upper arm from the place where it enters  
3 the cap to the elbow --

4 BY MR. NORTH:

5 Q Okay.

6 A -- in the calculations that I did, and I  
7 calculated the strain specifically where the arms enter  
8 the cap. And I did -- did it that way in such a way that  
9 the absence of the and forearm makes no difference to the  
10 calculation.

11 Q Now, you made various assumptions in those  
12 calculations; correct?

13 A Correct.

14 Q And one assumption regard -- was regarding the  
15 upper arm angle?

16 A Correct.

17 Q And one was regarding the radius of the strut;  
18 correct?

19 A Could you clarify which radius.

20 Q What radius were you considering when you put  
21 that in your table?

22 A That radius is the radius of the curve of the arm  
23 where it comes out of the cap.

24 Q And you also used different numbers for curvature  
25 change; correct?

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1 A Correct.

2 Q And explain what that is.

3 A Well, the curvature will depend on the extent to  
4 which the filter has to be squeezed to get it into the  
5 IVC. And, so, when you squeeze the arms of the filter to  
6 make it fit in the IVC, that changes the radius of  
7 curvature of that curve where it -- that comes out of the  
8 cap.

9 Q And then explain the column for maximum strain.

10 A The column for maximum strain is the strain that  
11 would be experienced in the arm where it comes out of the  
12 cap, and it's the strain caused by a one millimeter  
13 change of diameter of the IVC perhaps caused by  
14 breathing.

15 Q And you also performed these strain calculations  
16 with three different assumptions for the diameter of the  
17 vena cava; correct?

18 A Correct.

19 Q And those three assumptions were 14 millimeters,  
20 18 millimeters and 21 millimeters; correct?

21 A That's correct.

22 Q And the larger diameter you assumed for the vena  
23 cava, the greater the maximum strain you calculated was;  
24 correct?

25 A That's correct.

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1 Q And you did not do any calculations for a vena  
2 cava filter with a diameter of 25 millimeters; correct?

3 A That's correct.

4 Q And you did not do any calculations for a vena  
5 cava filter with a diameter of 25 -- I mean of 28  
6 millimeters?

7 A That's correct.

8 Q And the same would be true of a vena cava with a  
9 diameter of 29 millimeters?

10 A That's correct.

11 Q And your calculation showed that, the larger  
12 diameter you assumed for the vena cava, the greater the  
13 maximum strain would become; correct?

14 A That's correct.

15 Q So, therefore, if that is true, if you were to do  
16 these calculations assuming a 25 millimeter diameter vena  
17 cava, you would expect the maximum strains shown to be  
18 even greater; correct?

19 A That's correct. Yes, I would.

20 Q And the same would be true for a 28 millimeter  
21 diameter?

22 A That's correct.

23 Q So, as you sit here today, you cannot say what  
24 the maximum strain would be with a vena cava diameter of

25 28 millimeters?

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1 MR. STOLLER: Object to the form.

2 THE WITNESS: I don't have a specific figure, no.

3 BY MR. NORTH:

4 Q And you've made no calculation?

5 A Not in -- not in the context of this table, no.

6 Q And nowhere in your work in this particular  
7 litigation have you made those calculations of strain  
8 with regard to a filter operating in a 28 millimeter vena  
9 cava, have you?

10 MR. STOLLER: Object to form.

11 THE WITNESS: I'd need to review the full report.

12 But I don't believe that that's the case. I don't  
13 believe I did a specific calculation for 28 millimeters.

14 BY MR. NORTH:

15 Q And therefore, as you sit here today, you cannot  
16 say what the strain on the filter would be in a diameter  
17 of 28 millimeters; correct?

18 A That's correct.

19 Q Let's look at Table 2. What does that show?

20 A This shows the results for a Recovery filter. A  
21 similar calculation, except now the arm of the filter has

22 perforated the wall of the vena cava.

23 Q And, again, you're trying to calculate the  
24 maximum strains; correct?

25 A That's correct.

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1 Q And you did that -- those calculations with  
2 various assumptions for the diameter of the vena cava;  
3 correct?

4 A That's correct.

5 Q And those ranged from 14 millimeters to  
6 21 millimeters?

7 A That's correct.

8 Q And you did not do these calculations with any  
9 assumption of a vena cava with 28 millimeters; correct?

10 A That's correct.

11 Q And, so, you're not able to say, as you sit here  
12 today, what -- you're not able to quantify the strains in  
13 this analysis that would be present in a vena cava with  
14 28 millimeters in diameter?

15 A That's correct.

16 Q You are aware that later generations of Bard  
17 filters, such as the Meridian and the Denali came  
18 equipped caudal anchors and penetration limiters;

19 correct?

20 A I'm aware that Meridian has caudal anchors. The  
21 Denali has penetration limiters. And I believe the  
22 Denali has caudal anchors as well, but I don't recall  
23 exactly whether that's the case.

24 Q Are you aware of any single IVC manufacturer who  
25 incorporated caudal anchors or penetration limiters in a  
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1 retrievable filter prior to the time that Bard did?

2 A Yes.

3 Q Who is that?

4 A The Tulip. The Gunther Tulip. The Gunther  
5 Tulip.

6 Q And when did they do that?

7 A The -- it came out in the United States in about  
8 2002, 2003. But it had been available in Europe about  
9 ten years prior to that.

10 Q When you say in -- available in Europe, you mean  
11 in the Cook filter?

12 A Yes. The Cook Gunther Tulip filter was available  
13 in Europe during the 1990s.

14 Q And you have previously given -- filed a report  
15 in the Cook litigation that that Gunther Tulip filter is

16 defectively designed, haven't you?

17 A I have, yes.

18 Q Are you aware of any IVC filter manufacturer  
19 other than Cook who incorporated anchors or limiters in a  
20 retrievable filter prior to Bard?

21 A No, I am not.

22 Q You cannot speak in any detail or any depth about  
23 the process by which Bard studied and ultimately  
24 implemented anchors and limiters; can you?

25 A Sorry. Can I correct my previous answer?

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1 Q Yes.

2 A Could you ask me the question again. Because I  
3 think I answered it wrongly.

4 Q Are you aware of a single IVC filter manufacturer  
5 other than Cook who incorporated anchors or limiters in a  
6 retrievable filter any earlier than Bard did?

7 A Yes, I am.

8 Q Ask who is that?

9 A It's -- Rex/Argon is the company, and the filter  
10 is the Option. And it had a penetration limiter. And it  
11 was -- it was cleared in 2009, is my recollection.

12 Q Other than Cook, are you aware of any IVC

13 manufacturer who incorporated anchors or limiters in a  
14 retrievable filter prior to 2005 when --

15 A No.

16 Q -- Mrs. Tinlin received her filter?

17 A No. I am not aware of any.

18 Q So, the only filter available at the time  
19 Mrs. Tinlin had her -- only retrievable filter available  
20 at the time she had her implant in 2005 that had limiters  
21 or anchors was the Cook filter that you have also opined  
22 is defective?

23 MR. STOLLER: Object to the form.

24 THE WITNESS: That's correct.

25 BY MR. NORTH:

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1 Q Have you given any opinions on the design of the  
2 Argon filter you just mentioned?

3 A No.

4 Q Okay. You cannot speak in any detail or in any  
5 depth about the process by which Bard studied and  
6 ultimately implemented anchors and limiters, can you?

7 A No, I cannot.

8 Q And as an engineer in understanding product  
9 development process, as you do, you would agree it's not

10 just a matter of Bard snapping its fingers and suddenly  
11 limiters and anchors appear and work fine; correct?

12 A That's correct.

13 Q It requires some development work in the design  
14 and testing of those features; correct?

15 A That's correct.

16 Q And design and testing to ensure that the  
17 addition of those features do not compromise the safety  
18 or effectiveness of the device in other ways; correct?

19 A That's correct.

20 Q And you are not aware of what Bard did as far as  
21 developing or testing initial designs for limiters and  
22 anchors that may not have worked ultimately?

23 A I'm not aware of that work, no.

24 Q In this litigation you have criticized all  
25 generations of Bard filters; correct?

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1 A That's correct.

2 Q And you have also criticized the design of the  
3 Denali, which has both anchors and limiters; correct?

4 A Can I go back and rephrase my answer?

5 Q Yes.

6 A I don't think I've criticized the Simon Nitinol

7 filter. I've identified some features of it that are  
8 relevant to what might happen to it. But I don't believe  
9 I've criticized the Simon Nitinol filter.

10 Q Well, you've criticized the design of every  
11 single retrievable filter produced by Bard; correct?

12 A That's correct.

13 Q And that includes the Denali filter which has  
14 limiters and anchors; correct?

15 A That's correct.

16 Q Now, you have done no finite element analyses  
17 specific to the Eclipse, Meridian, or Denali filters;  
18 correct?

19 A So, the Eclipse is simply an electro polished  
20 version of the G2. And I did calculations for the G2.  
21 So, in that sense I did calculations for the Eclipse.

22 Q You have done none for the Meridian or Denali;  
23 correct?

24 A None specifically for the Meridian and the  
25 Denali.

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1 Q Now, your opinions include a number of criticisms  
2 of Bard's testing; correct?

3 A That's correct.

4 Q You have made no efforts personally to replicate  
5 their testing; correct?

6 A That's correct.

7 Q And you have made no efforts to devise  
8 alternative test protocols for tests that you believe  
9 should be done; correct?

10 A Not protocols. I haven't devised protocols, no.

11 Q And you have not developed any protocols for  
12 bench testing that you believe should have been  
13 performed; correct?

14 A That's correct.

15 Q And do I recall correctly from some of your  
16 previous testimony that you have never done any bench  
17 testing of a medical device in your career?

18 A I don't do bench testing. So, it's not in my  
19 professional activities.

20 Q What is an experimentalist?

21 A An experimentalist is someone who does  
22 experiments in the laboratory, physical experiments.

23 Q And that's not the sort of work you do; correct?

24 A That's correct. I am not an experimentalist.

25 Q And you don't have a laboratory, in fact, for  
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1 testing purposes?

2 A That's correct. I do not.

3 Q And, as a consequence, you do no animal testing;  
4 correct?

5 A I do no animal testing. That's correct.

6 It's not the kind of thing that mechanical  
7 engineers like me would do.

8 Q You're aware that caudal anchors were first  
9 utilized by Bard in the Meridian filter; correct?

10 A That's correct.

11 Q And that was first cleared for sale by the FDA in  
12 August of 2011?

13 A I don't recall the exact date. But I'll accept  
14 that if that is what you say.

15 Q And do you have any evidence as to whether those  
16 caudal anchors would have worked without compromising  
17 other elements of Bard filters before their  
18 implementation in 2011?

19 A I have no evidence, no.

20 Q And you have -- do you even know how many  
21 prototypes of caudal anchors they went through before  
22 they developed that design?

23 A No.

24 Q Do you know how many years they worked on that

25 design?

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1 A No.

2 Q And do you know what testing they did on caudal  
3 anchors?

4 A I'd have to review. But I know they did some  
5 testing of the Meridian filter, yes.

6 Q Well, before they actually developed the Meridian  
7 filter, do you know what testing they did of caudal  
8 anchors as a potential design attribute of the filters?

9 A No, I do not.

10 Q Now, you had previously stated the opinion,  
11 however, that the caudal anchors on the Meridian were not  
12 effective; correct?

13 A That's correct.

14 Q And it is your opinion that tilt perforation  
15 endothelialization and fracture in the Meridian filter is  
16 not significantly better, if any better, than in the  
17 Eclipse filter; correct?

18 A That's correct.

19 Q And you're aware that the Denali filter was  
20 cleared on May 15 of 2013?

21 A Again, I'm not exactly sure of the date. But

22 I'll accept that that is it if you're telling me so.

23 Q And the Denali had penetration limiters for the  
24 first time; correct?

25 A That's correct.

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1 Q Are you aware of any manufacturer that utilized  
2 penetration limiters prior to Bard?

3 A Yes.

4 Q And who was that?

5 A That was the Rex/Argon Option filter.

6 Q But you have criticized the Denali penetration  
7 limiters as inadequate; correct?

8 A That's correct.

9 Q And it was your -- it is your opinion that the  
10 Denali penetration limiters are too small; correct?

11 A That's correct.

12 Q But you've made no prototype of what you believe  
13 would be the correctly sized penetration limiter;  
14 correct?

15 A That's correct.

16 Q And, in fact, you've never identified what that  
17 size would be?

18 A That's correct.

19 Q And you have not done any calculations or testing  
20 to determine if limiters can be increased significantly  
21 in size and still fit into the sheath used to implant  
22 them; correct?

23 A That's correct.

24 Q Or what the impact of larger penetration limiters  
25 would be on the retrieval of the filter; correct?

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1 A That's correct.

2 Q So, while you believe that the Denali penetration  
3 limiters are too small to be sufficiently effective, you  
4 have done no analysis to determine whether larger  
5 penetration limiters would be feasible with this device,  
6 have you?

7 A That's correct.

8 Q And you have done no analysis of how larger  
9 penetration limiters may have compromised the performance  
10 or safety of the Denali filter, have you?

11 A No. I have not.

12 Q I believe you previously testified that it is  
13 your expectation that the Denali filter will have a  
14 comparable number of adverse events as any of the other  
15 Bard filters, notwithstanding the use of anchors and

16 limiters?

17 A That's correct.

18 Q And it's your belief that the Denali filter  
19 suffers from the same problems that you believe the  
20 earlier generation filters have even with the use of  
21 limiters and anchors?

22 A That's correct.

23 Q So, therefore, you do not believe it's sufficient  
24 for a filter to simply have some sort of anchors or  
25 penetration limiters in order to improve safety; correct?

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1 A That's correct. They need to be designed to be  
2 effective.

3 Q They have to be the proper size; correct?

4 A Correct.

5 Q They have to be a size that does not compromise  
6 the performance or the safety in some other way of the  
7 device; correct?

8 A Well, they -- they should be designed in such a  
9 way that they reduce the risks to the extent practicable  
10 and that -- that that is balanced against the benefits of  
11 the filter.

12 Q And you have made no effort in this litigation to

13 figure out the precise dimensions or size of these design  
14 features that would accomplish what you just described?

15 A That's correct.

16 Q Nowhere in your reports do you compare the  
17 anchors and limiters on the Denali filter to the anchors  
18 and limiters on any other type of filter such as the  
19 Simon Nitinol, Greenfield, Tulip, Bird's Nest, et cetera?

20 A That's correct.

21 Q Nothing in your reports address whether the  
22 anchors and limiters on the Meridian and/or Denali differ  
23 from those, if any, on the filters -- other filters  
24 you've identified in your report; correct?

25 A I'm sorry. Could you repeat that question.

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1 Q There is nothing in your report that compares the  
2 anchors and limiters on the Meridian and Denali filters  
3 with any anchors or limiters on the other manufacturers'  
4 models?

5 A Yeah. I make no comparison.

6 Q Okay. Let's look at page 2 of your present  
7 report, please, which is Exhibit 1. If we look down the  
8 second full paragraph, that begins with the statement,  
9 and I quote:

10                    "Bard made a choice to design the  
11                    Recovery filter without caudal anchors or  
12                    other features that would prevent and/or  
13                    minimize caudal migration."

14                    Is that correct?

15    A    That's correct.

16    Q    A choice is a decision. Would you agree with  
17    that?

18    A    Yes, I agree.

19    Q    And to know if a choice was actually made, you  
20 have to know what somebody's motivation was; correct?

21                    MR. STOLLER: Object to form.

22                    THE WITNESS: I'm not -- could you repeat the  
23 question. I'm not sure if I understand it.

24 BY MR. NORTH:

25    Q    Well, to know if a choice was consciously made,  
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1 you have to know a person's state of mind; correct?

2    A    I don't think so.

3                    MR. STOLLER: Form.

4 BY MR. NORTH:

5    Q    Why is that?

6    A    Because the fact is that the filter was produced

7 without a caudal anchor. And, so, therefore, that --  
8 that decision was made to produce it that way. That's  
9 the meaning I'm trying to convey in that sentence.

10 Q Well, you have no evidence one way or the other  
11 that Bard actually considered but then rejected caudal  
12 anchors as a design feature for the Recovery filter;  
13 correct?

14 A That's correct.

15 Q And you cannot testify as to Bard's motives in  
16 deciding or not deciding to use caudal anchors, can you?

17 A No, I cannot.

18 Q Or Bard's intent --

19 A No.

20 Q -- in making --

21 A Sorry.

22 Q -- that choice as you call it?

23 A That's correct.

24 Q Or their state of mind?

25 A That's correct.

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1 Q Now, a couple of paragraphs below you say,  
2 Bard -- or the next paragraph. I'm sorry.  
3 "Bard made a choice to design the

4                   Recovery filter without perforation  
5                   limiters or other features that would  
6                   prevent and/or minimize perforation of  
7                   the filter limbs through the walls of the  
8                   IVC."

9                   Correct.

10          A      Correct.

11          Q      And do you have any evidence one way or the other  
12         that Bard considered but then rejected perforation  
13         limiters for use with the Recovery filter?

14          A      I have none.

15          Q      And, again, with regard to a decision, if one was  
16         even made, regarding penetration limiters, you can't  
17         testify as to Bard's motives; correct?

18          A      Correct.

19          Q      Or their intent?

20          A      Correct.

21          Q      Or their state of mind?

22          A      Correct.

23          Q      Okay. Let's go to the next paragraph. Bard --  
24         it begins, and I quote again:

25                    "Bard made a choice to design the  
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1           Recovery filter without features that  
2           would prevent and/or minimize tilt or  
3           that would limit the negative  
4           consequences of tilt."

5           That's what you said; correct?

6   A    That's correct.

7   Q    But you have no evidence that Bard considered  
8   features to eliminate or reduce tilt but then rejected  
9   them in the design of the Recovery filter, do you?

10   A    That's correct.

11   Q    And, therefore, you can't testify as to Bard's  
12   motives, intent, or state of mind with regard to any  
13   design features to eliminate or reduce tilt?

14   A    Correct.

15   Q    And you're not aware of any design feature or any  
16   IVC filter that totally eliminates the risk of tilt; is  
17   that correct?

18   A    That's correct.

19   Q    And you cannot say that any feature, if added to  
20   the Recovery filter, would have eliminated tilt in  
21   Mrs. Tinlin's case; correct?

22   A    That's correct.

23   Q    And you cannot say by what percentage of risk  
24   tilt would have been -- what percentage risk of tilt  
25   occurring would have been reduced -- let me try this

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1 again.

2            You can't quantify how much the risk of tilt  
3 would be reduced in a filter with any particular safety  
4 feature added to the Recovery; correct?

5        A    That's correct.

6        Q    And you cannot say that Mrs. Tinlin's injuries  
7 would been avoided all together by the addition of any  
8 particular safety feature to eliminate or reduce tilt?

9        A    That's correct.

10      Q    Now, you've given previous testimony and you've  
11 talked in your previous reports about Bard's testing and  
12 analysis; correct?

13      A    That's correct.

14      Q    But you don't have any evidence one way or the  
15 other that Bard considered but then rejected specific  
16 tests regarding tilt, penetration limiters, or caudal  
17 anchors; correct?

18      A    That's correct.

19      Q    And, therefore, with regard to those decisions or  
20 the lack of decision, you cannot testify as to Bard  
21 motives, intent, or state of mind?

22      A    That's correct.

23 MR. NORTH: I have gone much quicker than I  
24 thought. I think I'm about finished.

25 MR. STOLLER: Let's take a break?

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1 MR. NORTH: Want to take a break?

2 MR. STOLLER: Yes.

3 THE VIDEOGRAPHER: The time is 12:07 p.m., and we  
4 are off the record.

5 (Recess.)

6 THE VIDEOGRAPHER: The time is 2:12 -- I'm  
7 sorry -- 12:12 p.m., and we're back on the record.

8 BY MR. NORTH:

9 Q Dr. McMeeking, let's look at page 3 of Exhibit 1,  
10 your report for this case, the first full paragraph that  
11 begins "all of the design features discussed."

12 Do you see that?

13 A I do, yes.

14 Q I'd like for you to look at the last sentence of  
15 that paragraph. And could you read that into the record.

16 A Of this paragraph?

17 "Many of these design feature existed  
18 in other IVC filter products already on  
19 the market, including the Simon Nitinol

20 filter, the Cook Gunther Tulip filter,  
21 the Greenfield filter, and the Cook  
22 Bird's Nest filter."

23 Q I will represent to you, Dr. McMeeking, that we  
24 have scanned -- more than scanned. We have fly spec'd

25 every previous report you've submitted in this litigation

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1 and found nothing referencing that point in any previous  
2 report. Do you believe you've actually stated that in a  
3 prior report?

4 MR. STOLLER: Object to form.

5 And to be clear, Richard, you're referencing that  
6 specific sentence he just read?

7 MR. NORTH: Yes. Yes.

8 THE WITNESS: I haven't written that particular  
9 sentence in my other reports to my recollection.

10 BY MR. NORTH:

11 Q Okay. Let's go to the next page, page 4. Do you  
12 see the paragraph beginning, "The bench test that Bard  
13 actually did"?

14 A Yes.

15 Q And look back or -- or look down towards the end  
16 of the paragraph, the fourth line from the bottom, the

17 sentence beginning, "Indeed." Can you read that  
18 sentence.

19 A Reading:

20 "Indeed Mr. DeCant, Bard's vice  
21 president" -- although it should say  
22 president -- "of research and development  
23 testified that by approximately April  
24 2004 Bard was aware that the Recovery

25 filter was not designed to account for  
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1 how the vena cava actually behaved. 23.  
2 Due to those failures, Mrs. Tinlin's  
3 Recovery filter migrated after  
4 implantation."

5 Q Dr. McMeeking, I would represent to you, again,  
6 that we have looked through all your prior reports and  
7 seen no reference to Mr. DeCant's previous testimony. Do  
8 you believe that you've ever discussed or recited his  
9 testimony in the past?

10 A I have not, no.

11 Q Why did you add it here then?

12 A Because it seemed relevant.

13 Q Well, that testimony and the way you rely upon it

14 for those opinions would apply to all your opinions in  
15 this litigation, not just your opinions specific to  
16 Ms. Tinlin; correct?

17 A That's correct.

18 Q And, similarly, the opinion you stated -- we  
19 talked about right beforehand, comparing Bard's filters  
20 to other manufacturers' filters and identifying those  
21 other filters by name -- those, likewise, apply to all of  
22 your opinions in this litigation and not just your  
23 opinion specific to Ms. Tinlin?

24 A That's correct.

25 MR. NORTH: Could we mark as Exhibit 3 the  
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1 following, please.

2 More paper for you to shred.

3 (Whereupon Defendants' Exhibit 3 was  
4 marked for identification by the court  
5 reporter and is attached hereto.)

6 BY MR. NORTH:

7 Q You have mentioned, before your testimony today,  
8 that you relied in part on the report of Dr. Muehrcke in  
9 this case; correct?

10 A Correct.

11 Q And is Exhibit 3 a copy of that report?

12 A Yes.

13 MR. NORTH: Let's look at Exhibit 4 -- or

14 designate this as 4, please.

15 (Whereupon Defendants' Exhibit 4 was

16 marked for identification by the court

17 reporter and is attached hereto.)

18 BY MR. NORTH:

19 Q In Exhibit 4 -- well, what is Exhibit 4? Can you

20 identify that?

21 A It's expert report Debra Tinlin versus CR Bard,

22 Inc., produced by Darren R. Hurst, M.D.

23 Q And you have previously testified that you relied

24 heavily on Dr. Hurst's report for certain parts of your

25 report; correct?

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1 A Correct.

2 Q And this is the report that you've relied on;

3 correct?

4 A That's correct.

5 Q Dr. McMeeking, have you been told that the

6 defendants have filed a motion to strike portions of your

7 report in this particular case?

8 A I have been told that, yes.

9 Q Have you been furnished with a copy of that  
10 motion?

11 A Yes, I have.

12 Q And you reviewed that motion?

13 A I did.

14 Q Do you recall that the motion indicated or argued  
15 that your report in Tinlin included some new opinions  
16 applicable to all Bard's filters and not specifically to  
17 the Tinlin case?

18 A I'm aware that that's what is in the motion, yes.

19 Q Okay. Do you agree with that?

20 A No.

21 Q You don't think your report contains any new  
22 general opinions about Bard's filters?

23 A No. It does not.

24 Q Dr. McMeeking, you testified in a case involving  
25 a Bard filter back in 2012 in a state court in Phoenix,  
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1 Arizona; correct?

2 A I'd have to review my -- can you tell me which  
3 case it was?

4 Q The Rosemary Everett case in Maricopa County?

5 A Yes. I recall that case and trial. I don't  
6 remember exactly what year it was. But, yes.

7 Q And your expert opinion in that case was that the  
8 Bard Recovery filter implanted in Miss Everett was  
9 defectively designed; correct?

10 A Correct.

11 Q And then in 2018 you testified in three trials in  
12 federal court in Phoenix regarding Bard filters; right?

13 A They were all in the same year, same calendar  
14 year.

15 Q Well, the Bookert trial in March of 2018 you  
16 testified; correct?

17 A Correct.

18 Q And that involved a G2 filter; correct?

19 A Correct.

20 Q And your opinion in that case was the G2 filter  
21 was defectively designed?

22 A That's correct.

23 Q And then you testified two months later in May of  
24 2018 in the Hyde case; correct?

25 A Correct.

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1 Q And that involved an Eclipse filter?

2 MR. STOLLER: Form.

3 BY MR. NORTH:

4 Q I'm sorry. The Jones case. Correct?

5 A Correct.

6 Q And that involved an Eclipse filter?

7 A That's my recollection, yes.

8 Q And you testified in that case that in your  
9 opinion the Eclipse filter was defectively designed?

10 A Correct.

11 Q Then you testified in a third Bard trial in  
12 September of 2018 called Hyde; correct?

13 A Correct.

14 Q And there was some dispute in that case as to  
15 whether it involved a G2X or an Eclipse filter; correct?

16 A That's what I recall, yes.

17 Q But it was your testimony and opinion in that  
18 case that, regardless which filter it was, it was  
19 defectively designed?

20 A That's correct.

21 Q So, those are four Bard trials that you've  
22 testified in; correct?

23 A Correct.

24 Q And in each of those four cases your opinion was

25 that the filter was not defectively designed? I mean was  
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1 defectively designed. I'm sorry.

2 A Yes. That's correct.

3 Q Then you had testified in two Cook trials

4 regarding filters, one live, and one by videotape;

5 correct?

6 A Well, I've now testified in two live trials, plus

7 one by videotape.

8 Q But the third one has not been completed?

9 A Correct.

10 Q You have testified in two Cook trials that have

11 been completed?

12 A Yes. That's correct.

13 Q And the first one was in -- a couple of years ago

14 in Evansville, Indiana, where you testified live?

15 A Correct.

16 Q And your testimony and opinion in that case was

17 that the Cook filter was defectively designed; correct?

18 A Correct.

19 Q And what model of filter was involved in that

20 case?

21 A That was a Celect filter.

22 Q A Celect. Okay.

23                   And then you testified by videotape in a case  
24 pending in a state court in Houston, I believe last  
25 spring of 2018; correct?

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1       A     Yes. That's correct.

2       Q     And that was called Pavlock?

3       A     Correct.

4       Q     And what filter did that involve?

5       A     I don't actually recall. Because I didn't review  
6 the -- the information to come here today.

7       Q     But your opinion in that particular case was that  
8 the Cook filter was defectively designed; correct?

9       A     Correct.

10      Q     So, there have been a total of six completed  
11 trials, two against Cook and four against Bard, where you  
12 have given the opinion that the fil -- IVC filter was  
13 defectively designed; correct?

14      A     That's correct.

15      Q     And, Dr. McMeeking, you're also aware that in all  
16 six of those cases the jury decided that the filter was  
17 not defectively designed?

18                   MR. STOLLER: Object to form.

19                   THE WITNESS: It's my understanding that on the

20 design issue, that the verdict went the way of the  
21 defendant, yes.

22 BY MR. NORTH:

23 Q In all --

24 A Ones that have been completed, yes.

25 Q In all six cases?

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1 A Correct.

2 Q Dr. McMeeking, does it give you any concern that  
3 six separate juries in this country have declined to  
4 accept your opinion regarding these devices?

5 A Could you explain --

6 MR. STOLLER: Object to form.

7 THE WITNESS: Sorry. Could you ask the question  
8 again.

9 BY MR. NORTH:

10 Q Does it give you some concern about your expert  
11 opinions in this case that six different juries from  
12 different parts of the country have disagreed or failed  
13 to adopt your opinion that these devices are defectively  
14 designed?

15 MR. STOLLER: Object to form.

16 THE WITNESS: Well, it gives me some concern in

17 the sense that I'm not explaining myself well enough to  
18 the jury, yes.

19 BY MR. NORTH:

20 Q Does it ever give you pause to think that they --  
21 that -- nothing.

22 That's all I have.

23

24 EXAMINATION

25 BY MR. STOLLER:

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1 Q Dr. McMeeking, I'd like to go over some of the  
2 questions that Mr. North asked you earlier today.

3 And I believe he asked you some questions about  
4 whether specific patient physical traits could affect the  
5 effectiveness of some of the design changes that you have  
6 recommended for the Recovery filter.

7 And one of those physical traits Mr. North asked  
8 you about was whether the IVC, if it was larger than the  
9 indicated upper limits of size, could affect the  
10 effectiveness of perforation limiters.

11 Do you recall that testimony?

12 A I do, yes.

13 Q And I believe in response to his question you

14 responded that, in fact, a -- an overly -- I'm going to  
15 use the term "overly large" -- but an overly large IVC  
16 could affect the effectiveness of perforation limiters;  
17 is that correct?

18 MR. NORTH: Objection. Leading.

19 THE WITNESS: That's correct.

20 BY MR. STOLLER:

21 Q Is that -- let me ask the question this way. Can  
22 an overly large IVC affect the effectiveness of  
23 perforation limiters as a design feature that you've  
24 identified to be included in the Recovery filter?

25 A No. They would not.

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1 Q Why not?

2 A Because they -- when they are pressed against the  
3 wall of the IVC, they are going to reduce the tendency  
4 for perforation to take place so that, in that regard --  
5 in that sense they are still just as effective whether  
6 the IVC is big or small.

7 Q And you had testified that -- in response to  
8 Mr. North's question, that the -- that an overly large  
9 IVC could affect the effectiveness of perforation  
10 limiters. What was your intent or meaning when you gave

11 that testimony?

12 MR. NORTH: Objection. Leading.

13 THE WITNESS: Well, the meaning of my testimony  
14 was that, when the IVC is large, there is less tendency  
15 for perforation to take place and therefore less need of  
16 a perforation limiter, and therefore the perforation  
17 limiter would not be effective in the sense that it's  
18 guarding against something that may not be such a big  
19 threat -- a big risk.

20 BY MR. STOLLER:

21 Q Mr. North asked you about that same series of  
22 questions with respect to whether things such as an  
23 overly large IVC or caval motion could affect -- or  
24 impact the effectiveness of some of the design features

25 that you've advocated for with respect to the Recovery

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1 filter and asked you as to those, where you indicated  
2 that you thought those might, whether you had done any  
3 testing to support those -- those answers.

4 Do you recall that?

5 A I do, yes.

6 Q And I think you indicated that you've not done  
7 any testing; is that correct?

8 A That's correct.

9 Q Have you applied the principles you use in your  
10 capacity as a mechanical engineer in coming to those  
11 conclusions?

12 A Yes.

13 Q And can you give a general explanation of what  
14 your -- how you arrived at the conclusion that those  
15 designs could or would alleviate some of those issues.

16 A Well, in -- in any given circumstances where the  
17 filter is likely to -- to, for example, tilt, then having  
18 features that would inhibit that tilt is going to be  
19 beneficial in the sense that it would reduce the degree  
20 of tilt.

21 Similarly, with perforation, if there are  
22 features that help to reduce the degree of perforation,  
23 then they will reduce the extent to which perforation  
24 will take place.

25 And similarly if there are features that help to  
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1 reduce the risk that the filter faces in terms of the  
2 possibility of fatigue fracture, then features that  
3 address that will help to reduce that risk.

4 Q Let me ask a specific question on this point,

5 which is that, I believe Mr. North asked you whether an  
6 overly large IVC or IVC greater than the size indicated  
7 in the IFU could affect the effectiveness of the chamfer  
8 that you produced here. And I believe your testimony was  
9 that you did not think it would.

10 Is that correct?

11 MR. NORTH: Objection. Leading.

12 THE WITNESS: That's correct.

13 BY MR. STOLLER:

14 Q And in arriving that the conclusion, you didn't  
15 perform any tests; correct?

16 A That's correct.

17 Q It's not something that's in any of the reports  
18 that you've provided in this litigation. Is that true?

19 A That's true. Yes.

20 Q You were responding to a question by Mr. North in  
21 this deposition; correct?

22 A Correct.

23 Q But in arriving that the conclusion, did you  
24 apply the principles of mechanical engineering that you  
25 use in coming to your other opinions in this case?

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1 A Yes, I did. Yes.

2 Q So, could you explain that application as to that  
3 example.

4 A Well, the chamfer on the mouth of the cap becomes  
5 significant when the struts interfere with the cap. So,  
6 that, if they are riding against the cap, then the  
7 strains can be elevated, and the presence of the -- of  
8 the chamfer will help to control that effect.

9 And, therefore, the chamfer can be beneficial in  
10 circumstances where the strut is interacting with the cap  
11 and can help to reduce the danger of fatigue fracture  
12 taking place. And that circumstance becomes significant  
13 when the struts are touching the mouth of the cap.

14 If the struts are not touching the mouth of the  
15 cap, then it's not so relevant. And, therefore, it  
16 depends on specific circumstances that arise in specific  
17 cases. And that would depend on many things, including  
18 the size of the IVC.

19 Q Is it fair to say that, in arriving at your  
20 conclusions here today in response to Mr. North's  
21 questions as to whether the particular design features  
22 you identified would be affected by an overly large IVC,  
23 you applied the same principles that you did in  
24 concluding that those were necessary design features?

25 A That's correct.

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1 MR. NORTH: Objection. Leading.

2 THE WITNESS: That's correct.

3 BY MR. STOLLER:

4 Q Let me ask you some questions quickly about your  
5 report, which has been marked as Exhibit 1 to your  
6 deposition. And, specifically, I'd like to focus first  
7 on the facts which are outlined on page 1, 2 in the  
8 bullets points of your report.

9 What is the source for the information that's in  
10 those bullet points?

11 MR. NORTH: Objection. Asked and answered.

12 THE WITNESS: The source is Dr. Hurst's report,  
13 Dr. Muehrcke's report, and my review of the medical  
14 records in Mrs. Tinlin's case.

15 BY MR. STOLLER:

16 Q And I would like you to pull what has been marked  
17 as Exhibit 4 to your deposition, which is Mr. Hurst's  
18 report. Real quickly. And if you wouldn't mind skimming  
19 what is on his report from pages 2 through 10 under  
20 imaging reviewed.

21 A Yes.

22 Q In those, what I just had you look through, are  
23 Dr. Hurst' review of the imaging that he did for

24 Mrs. Tinlin; correct?

25 A Correct.

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1 MR. NORTH: Objection. Leading.

2 BY MR. STOLLER:

3 Q Did you review that -- those portions of

4 Dr. Hurst's report for purpose of preparing your report?

5 A That's correct.

6 Q And did you rely on Dr. Hurst's analysis as to

7 what those imaging studies showed with respect to

8 Mrs. Tinlin's filter?

9 A That's correct.

10 Q For purposes of your report, did you assume those

11 facts to be true?

12 A Yes, I did. Yes.

13 Q And you're not providing any independent

14 testimony as to the truth of those facts or whether or

15 not Dr. Hurst's analysis of them is correct; is that

16 true?

17 A That's correct.

18 Q And is it reasonable for you in your capacity as

19 an expert on issues of mechanical engineering to rely on

20 Dr. Hurst's analysis of the facts to form the basis of

21 your opinions?

22 A Yes, it is reasonable.

23 Q Earlier Mr. North asked you some questions about

24 whether, if Mrs. Tinlin's IVC was larger than indicated

25 in the IFU, it could affect the failure mode she

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1 experienced in this case.

2 Do you recall that testimony?

3 A I do.

4 Q And I believe you indicated that whether her IVC

5 was larger than indicated in the IFU could affect the

6 failure mode; is that correct?

7 MR. NORTH: Objection. Leading.

8 THE WITNESS: That's correct.

9 BY MR. STOLLER:

10 Q Let me ask this question. Your understanding --

11 is it correct that your understanding is that the IFU

12 indicates for use in IVCs up to 28 millimeters?

13 A That's correct.

14 Q And do you have an understanding, based on your

15 review of Bard's records to which you had access or were

16 provided to you in this litigation, with respect to

17 Bard's understanding of the size of an IVC and why that

18 number at 28 was included the IFU?

19 THE REPORTER: Was?

20 MR. STOLLER: Included in the IFU.

21 MR. NORTH: Objection to the form.

22 THE WITNESS: Well, it's my understanding that

23 they understood that the size of the vena cava is

24 variable due to many circumstances, such as breathing,

25 motion, Valsalva, and so on, and that -- that there

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1 was -- there were also aspects of the behavior of the  
2 filter that might be compromised by a large vena cava,  
3 such as migration. And so they put a limit on how big  
4 the vena cava should be in terms of the instructions for  
5 use in terms of allowing it to be implanted.

6 BY MR. STOLLER:

7 Q And do you have an understanding, based on your  
8 review of the medical literature, of the type or amount  
9 of variation that might happen than IVC?

10 A I do.

11 Q And what is that?

12 A Well, my understanding is that the variation can  
13 be very significant, such as perhaps as large as  
14 43 percent during breathing. In other words, the width

15 of the IVC can change by as much as 43 during breathing.  
16 And during Valsalva it can change by amounts that are as  
17 high as 90 percent in terms of the change of width of the  
18 IVC.

19 Q And do you have expertise in terms of identifying  
20 what the size -- I use the term size loosely -- of an IVC  
21 is in its normal state versus in its expanded or  
22 contracted state?

23 A I'm not sure I understand the question. Can you  
24 repeat the question, please.

25 Q Sure.

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1 I think you understood you to say that the IVC  
2 can vary in size and normal breathing by as much as  
3 43 percent?

4 A Correct.

5 Q I'm going to use 50 percent for ease of math.  
6 So, if somebody's normal state IVC is 20 millimeters, it  
7 could in normal state expand and contract to as much as  
8 30 millimeters.

9 Am I understanding that correctly?

10 A That's correct.

11 Q So, do you have an understanding of how to

12 determine when you're looking at an IVC whether it is in  
13 a normal state, which is 20 millimeter IVC which is  
14 expanded to 30, or if it is a 30 millimeter IVC that  
15 could expand or contract from there?

16 MR. NORTH: Objection to the form.

17 THE WITNESS: Well, with a snapshot measurement,  
18 you wouldn't know whether that is as big as it's going to  
19 be or as small as it's going to be or how much the change  
20 of width might be that the patient would experience.

21 BY MR. STOLLER:

22 Q And is it -- based on your understanding of the  
23 function of the IVC, can a 28 millimeter IVC in its  
24 normal state ever be larger than 28 millimeters?

25 MR. NORTH: Object to the form. Leading.

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1 THE WITNESS: Yes.

2 BY MR. STOLLER:

3 Q And by how much and how big can it get?

4 A Well, if we use the 50 percent figure that  
5 represents breathing, it could be as large as  
6 43 millimeters in width as a consequence of that kind of  
7 increase in diameter.

8 Q Now, based on your review of the internal Bard

9 documents, were they -- did they take that into account  
10 in 2004 and 2005 in designing the -- I should take that  
11 back -- in 2003 and 2002 in designing their Recovery  
12 filter?

13 MR. NORTH: Objection. No foundation.

14 THE WITNESS: No. They did not.

15 BY MR. STOLLER:

16 Q Were they aware of the fact that the IVC could  
17 expand by that much at that point in time?

18 MR. NORTH: Objection. No foundation.

19 THE WITNESS: They were not.

20 BY MR. STOLLER:

21 Q And, so, is there any indication in the IFU that  
22 warns treating doctors that the filters shouldn't be  
23 implanted in an IVC that is 28 millimeters because it  
24 might expand to a greater size?

25 MR. NORTH: Objection to the form.

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1 THE WITNESS: Not to my knowledge.

2 BY MR. STOLLER:

3 Q Are there design aspects of the filter that  
4 should have taken those issues into account?

5 A Yes.

6 Q And what are they?

7 A The design aspects, such as making sure that the  
8 anchoring of the filter to the wall would be effective  
9 even as the vena cava became very large so that it would  
10 not be prone to tilting and migration when the vena cava  
11 becomes very large and the features that might limit  
12 perforation if the vena cava becomes very small, which  
13 will tend to make perforation more likely.

14 And since both tilt and perforation contribute to  
15 the likelihood of fracture, they would affect the  
16 likelihood of fracture by fatigue, and therefore the  
17 design should have taken that into consideration in  
18 regard to its resistance to fatigue fracture.

19 Q And if a filter is indicated for use in an IVC up  
20 to 28 millimeters, should it be also -- in light of the  
21 fact that IVC can expand fairly significantly, should it  
22 be designed to be safe and effective for use in IVCs  
23 greater than 28 millimeters?

24 MR. NORTH: Objection to the form. No  
25 foundation. And leading.

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1 THE WITNESS: Yes.

2 BY MR. STOLLER:

3 Q Mr. North asked you some questions about your  
4 analysis of other filters in the overall IVC filter  
5 litigation against Bard and specifically as to FEA  
6 analysis you had conducted as to the various filters.

7 And I believe you testified that you had not conducted  
8 FEA specific to the Meridian and Denali.

9 Was that your testimony?

10 A That's correct.

11 Q Is that accurate?

12 A No. I realized that I misspoke when I said that  
13 the calculations are not relevant to the Meridian because  
14 the Meridian in its overall shape is identical to the G2,  
15 which I did do calculations for, both finite element  
16 calculations and --

17 THE REPORTER: Both?

18 THE WITNESS: -- finite element calculations and  
19 other calculations by algebra and calculus, and so on.

20 So, those calculations all apply to the Meridian.

21 They also apply, in an approximate way, but fairly  
22 accurately, render the approximation to the Denali.

23 Because the shape of the Denali is very similar -- is  
24 quite similar to the shapes of the Meridian, the Eclipse,  
25 and the G2.

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1 BY MR. STOLLER:

2 Q Dr. McMeeking, with respect to the report that is  
3 Exhibit 1 here today and the other reports that you've  
4 provided in the Bard IVC filter litigation, do those  
5 reports accurately set forth your opinion and the basis  
6 for opinions that you've arrived at to a reasonable  
7 degree of engineering probability?

8 A Yes, they do.

9 Q And in coming to those conclusions and opinions,  
10 did you follow a methodology that is utilized by  
11 reasonable engineers in your field to resolve these  
12 issues?

13 A I did, yes.

14 Q And did you apply the same methods and processes  
15 that are used by mechanical engineers in arriving at  
16 those opinions?

17 A Yes, I did.

18 Q In order to come to your opinions as to the  
19 design and testing of the Bard IVC filters, was it  
20 necessary for you to carry out bench testing or animal  
21 testing?

22 A No. It was not.

23 Q And do mechanical engineers in your role

24 typically carry out bench testing or animal testing?

25 A Well, many of them carry out bench testing. But  
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1 animal testing would be an unusual pursuit for a  
2 mechanical engineer of my background and professional  
3 activities.

4 Q The purpose of the bench -- what's the purpose of  
5 bench testing?

6 A The purpose of the bench testing is to simulate  
7 the environment that the filter will experience as  
8 closely as possible and to investigate whether it will  
9 suffer failure modes that need to be avoided once it's  
10 implanted in a patient, and also to see whether it -- the  
11 filter will be -- is likely to be effective in terms of  
12 counting out its function.

13 Q And you've reviewed much of the bench testing  
14 that Bard conducted with respect to the IVC filters in  
15 this litigation; correct?

16 A That's correct.

17 Q And specifically you've done that as to the  
18 Recovery; correct?

19 A That's correct.

20 Q And do those bench -- does that bench testing

21 conform with the standard you just articulated?

22 A No. They do not.

23 Q Did you follow the methodology that engineers use

24 and should follow when doing the analysis that you've

25 done in this case?

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1 A Yes, I did.

2 Q And you were asked questions about whether you

3 had inspected Mrs. Tinlin's filter or filter fragments

4 are still in her body.

5 Do you recall that?

6 A I do.

7 Q Do you need to inspect those in order to arrive

8 at the conclusions you have in this case?

9 A No, I do not.

10 MR. STOLLER: I don't have any further questions.

11 MR. NORTH: Just a few more, Dr. McMeeking.

12

13 FURTHER EXAMINATION

14 BY MR. NORTH:

15 Q Obviously established earlier that you're not a

16 medical doctor?

17 A Correct.

18 Q And you would not consider yourself an expert in  
19 human anatomy?

20 A Correct.

21 Q Or how the inferior vena cava works; correct?

22 A Depends how you define expert. I know quite a  
23 lot about it. But whether -- I wouldn't declare myself  
24 to be an expert.

25 Q You have no training in how the inferior vena

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1 cava works, do you?

2 A Only self-training. Only self-education.

3 Q You have no formal education in the anatomical  
4 workings of the IVC?

5 A That's correct.

6 Q And you have never, before this litigation and  
7 your involvement in this litigation, had occasion to deal  
8 with the inferior vena cava professionally; correct?

9 A That's correct.

10 Q And since you became involved in this litigation,  
11 you've had no dealings with the inferior vena cava in any  
12 other context other than your litigation consulting?

13 A That's not quite true.

14 There is the work I've done for Edwards in

15 connection with an IVC implant. But that's all.

16 Q Okay. And you have not set out to do a  
17 comprehensive review of the medical literature concerning  
18 the workings of the IVC; correct?

19 A That's correct.

20 Q And you as you sit here today, could you even  
21 name the five -- or five leading authorities in the  
22 medical literature on the operation of the IVC?

23 A No, I could not.

24 Q How many articles do you think you've even read  
25 concerning the operation of the IVC?

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1 A I would guess about 50.

2 Q Now, you testified that you believe the -- did I  
3 understand you to say that you believe that the FEA you  
4 conducted with regard to the G2 would be applicable to  
5 the Meridian because the dimensions were identical?

6 A That's correct.

7 Q And, so, it's your belief that the physical  
8 dimensions of the Meridian are identical to those of the  
9 G2?

10 MR. STOLLER: Object to form.

11 THE WITNESS: Well, there are features on them

12 that are different; for example, the caudal anchors and  
13 the cap may be slightly different in shape. But  
14 otherwise the shapes are close enough that they are --  
15 behavior in the context of the calculations that I did  
16 would be very much the same.

17 BY MR. NORTH:

18 Q So, you believe the calculations you did with the  
19 G2 are applicable generally to both the Meridian and the  
20 Denali; is that correct?

21 A Applicable to the Meridian quite closely. And in  
22 an approximate manner to the Denali, yes.

23 Q But you will admit that you've never done an FEA  
24 with the precise dimensions of the Meridian, including  
25 the anchors and everything, or with the precise

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1 dimensions of the Denali?

2 A That's correct.

3 Q Now, you were asked a series of leading questions  
4 by Mr. Stoller concerning the basis of your opinions in  
5 which you stated several times that you have applied  
6 principles of engineering; is that correct?

7 A That's correct.

8 Q And in particular that you have applied

9 principles of engineering in determining that these  
10 design features you have advocated -- the caudal anchors,  
11 the penetration limiters, two-tiered design, and the  
12 curved or rounded cap -- would reduce the risk of various  
13 complications; correct?

14 A That's correct.

15 Q And you also said that you've applied the  
16 principles of engineering to reach that same conclusion  
17 with regard to a reduction in risk in someone with an IVC  
18 greater than 28 millimeters in diameter; correct?

19 A That's correct.

20 Q But, again, you have not conducted any testing or  
21 any calculations to quantify the extent to which those  
22 design attributes would reduce the risk of complications  
23 in a patient; correct?

24 A That's correct.

25 Q And, likewise, you have not conducted any tests

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1 or made any calculations to quantify the extent to which  
2 those design attributes would reduce the risk of  
3 complications in a patient with an IVC greater than 28  
4 millimeters in diameter?

5 A That's correct.

6 MR. NORTH: That's all I have. We're done.

7 MR. STOLLER: Thank you. We're done.

8 THE VIDEOGRAPHER: This will mark the conclusion  
9 of today's deposition of Robert M. McMeeking, PhD.

10 The time is 12:50 p.m., and we are off the  
11 record.

12 THE REPORTER: Counsel, pursuant to Rule 30, if  
13 there were any stipulations entered into during the  
14 course of the deposition, including regarding custody of  
15 the transcript and handling of the exhibits, they must be  
16 repeated at the end of the deposition.

17 MR. NORTH: That must be a California thing.

18 THE REPORTER: How would you like me to handle  
19 the original transcript?

20 MR. NORTH: Please send the original to me.

21 THE REPORTER: And will you take custody of the  
22 transcript for safekeeping and presentation at any  
23 hearings or trial in this matter?

24 MR. NORTH: Yes.

25 THE REPORTER: Mr. Stoller, would you like a

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1 certified copy of the transcript?

2 MR. STOLLER: Sure. At the end of the day, we'll

3 need a copy. Just an electronic copy is fine with  
4 exhibits. We have a standing order.

5 MR. NORTH: Electronic copy for me as well with  
6 exhibits.

7 (Whereupon at 12:51 p.m. the deposition  
8 of Expert Witness Robert M. McMeeking, PhD was concluded.)

9 --oo0oo--

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